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FEATURES

On the cover . . . This classic Savage Model EG (1950) .250-3000 lever rifle features a 24-inch barrel and a vintage Leupold Pioneer 4x scope. Photo by Terry Wieland.

COLUMNS

Background Photo: © 2015 Vic Schendel

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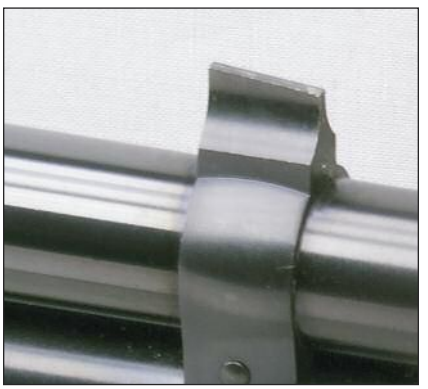
.44 WCF Barrels

RELOADER'S PRESS by Dave Scovill

When Winchester introduced the "new" Model 1873 rifle a couple of years ago, the carbine on the display rack at the SHOT Show in Las Vegas appeared to be a nice reproduction of the originals. The rifles were hard to come by at the time owing limited production, so I decided to wait a bit before ordering one.

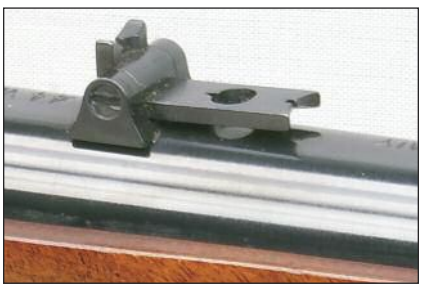
My interest in the Model 73 was not so much about whether it was a true mechanical copy of the original rifles, but pre-World War II Model 73 and 92 .44 WCFs generally have barrels that average around .4295 inch, while catalogs of the late 1890s from Ideal and Winchester indicated barrels should be .427 inch, the same as Colt Single Actions of that period.

So, while I was waiting for a current Miroku-made Winchester Model 73 to show up here at the office, I was unaware that my wife, Roberta, had also ordered a Model 1873 Short Rifle as a retirement gift. When the short rifle arrived, the first order of business was to measure the barrel, which, sure enough, measures just a tick over .429 inch, the same as a dozen or so Model 73 and 92 barrels that have been measured over the years.



The catch here is that all the Colt .44 WCF barrels on hand, including single actions and a New Service, average around .427 inch, the same as the Uberti and USFA .44 WCF Colt copies. So it is, at the very least, interesting that there appears to be no standard barrel diameter among companies that manufacture .44 WCF barrels, handguns and rifles, from this country, Italy, Japan and Brazil, which is not to ignore Model 66 and Henry .44 WCF reproductions out of Italy that also have .429-inch barrels.

None of the above would be of particular concern were it not for the fact that it was and still is common among writers to note that the chief reason for the popularity of the Colt SAA and Winchester Model 73 among settlers and frontiersmen of the late 1800s was the convenience of having a rifle and handgun that fired the same ammunition.



The front sight (left) on the Model 66 requires some adjustment. Using the rear sight (above) in the "down" position, with an adjustment to the front sight, should place bullets to point of aim at 50 yards. With the rear sight in the raised position (below), the V notch in the aperture should place the bullet to point of aim at 100 yards, and the upper notch extends the range.

Truthfully, where black-powder ammunition was the only game in town, the disparity between handgun and rifle barrel diameters may not have mattered much, at least in terms of accuracy. In those days, bullets were relatively soft by modern standards, one part tin to 40 parts lead, so a .427- to .428-inch bullet that fit handgun barrels would bump up to .429 inch when fired in rifles. The catch here is that Colt SAAs and most replicas I have used have comparatively snug chamber dimensions that effectively prevent the use of bullets

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that are sized to much over .428 inch. For that reason, even today, .44 WCF ammunition is routinely loaded with jacketed or lead alloy bullets that measure from .427 (Winchester and Remington) to .428 inch (Black Hills).

That's all well and good, except for when harder lead alloys are used, which generally refuse to bump up at the relatively low pressures involved, approximately 14,000 CUP in deference to older black-powder era firearms. In closed-breech rifle barrels, that is not a serious matter, except for the fact that even slightly undersized, hard-cast bullets have a decided tendency to wander a bit upon exiting the barrel.

A case in point involves a Uberti Model 66 replica carbine recently acquired from Dixie Gun Works. Typical of Uberti products, it is well made and the barrel measures .429 inch. So, for early testing Winchester .44-40 factory loads that feature .427-inch jacketed bullets were chosen along with handloads with two different styles of moderately hard cast bullets. One style was cast of a relatively hard alloy, BHN 12, and sized to .428 inch; the other was BHN 10 and sized to .430 inch. Both were seated over 16.5 grains of 2400 for about 1,300 fps, a standard used for over 20 years in a variety of .44 WCF rifles and handguns.

With a Wolfe Publishing handgun target placed at 50 yards, the Winchester factory load scattered bullets over 5 to 6 inches. The handload with .428-inch cast bullets shot about the same, while the load with bullets sized to .430 inch averaged about 3 inches – still subpar but much better. From the outset, it was obvious that the front sight was too tall, causing 200-grain loads to print over a foot low. The front sight can be filed down to regulate it for appropriate loads, but the carbine is on loan from Dixie Gun Works. Of course, the too-tall front sight prevented moving the target back to 75 or 100 yards, where test loads would

shoot into the dirt in front of the target.

On the same day the Model 66 was tested, a Winchester Model 92 .38 WCF rifle (circa 1927) was tested with handloads using my RCBS 40-185-SWC cast bullet design sized to .403 inch and seated over 16.5 grains of 2400 for about 1,350 fps. The barrel of this rifle is a bit rough but quite serviceable, measuring .401 inch with little if any wear at the muzzle. Five-shot groups printed inside 2 inches at 50 yards and close to 3 inches at 100 yards, with three of the five shots huddled a bit closer.

Admittedly, 3-inch, five-shot efforts at 50 yards with the Model 66 is nothing to rave about, but relative accuracy comparisons for all three loads is about what I've come to expect over the years, where cast bullets sized to .430/.431 inch shoot best. The key is bullet diameter and hardness, and of course, the load with the .430-inch bullet will not fit in any Colt .44 WCF or copies thereof, with the possible exception of the Ruger Vaquero that has a .429-inch barrel groove diameter.

Acknowledging all the above, the notion of shooting the same .44 WCF load in handguns and rifles is a bit convoluted. At least that's true if bullets are an optimum fit in both guns. I've also found that the idea of carrying a rifle and a handgun at the same time is folly, mostly because it requires two loads with different bullet diameters, but it's also a bit silly to put a rifle down to use the handgun, which means the revolver ultimately becomes just so much dead weight.

Nearly 25 years ago, when we experienced a plague of coyotes around our home north of Prescott, the .44 WCF was the go-to choice

The recently reintroduced .44 WCF Winchester Model 73 (top) and the Uberti copy of the Model 66 Winchester (bottom) have barrel groove diameters of .429+ inch.

for keeping the pesky critters at bay. In those days, there was a Model 92 resting against the wall in the back bedroom and a Uberti Model 73 in the front of the house, both with 14 or so rounds in the magazines. The load of choice in both rifles was the RCBS 44-200-SWC seated over 16.5 grains of 2400 in Remington cases that were sized to match factory dimensions with a .325-inch neck length to hold the base of the cast bullet securely. To restore the case to factory dimensions, since the fired case produced a much shorter case neck, I asked RCBS to cut about .25 inch off the bottom of the die so the case could enter the die far enough to restore the original case neck length. Sometime later, I cut a .38 WCF sizing die down to lengthen those cases as well.

After reading my comments about .44 and .38 WCF case neck sizing in *Colt's Single Action Army, Loading and Shooting the Peacemaker* awhile back, Kent Sakamoto and one of his die makers at RCBS called to ask if restoring the case neck to factory length resulted in busted cases after repeated use. I acknowledged that it might, eventually, but of the case brands I had used over the years, Remington brass was prone to crack lengthwise on the body. When bumping the powder charge up to 18.5 grains of 2400, or slightly more, and used repeatedly, the case heads sometimes separated with the first firing, or the second, leaving the front of the case in the chamber as the extractor pulled the back half out. Even with Remington brass, repeated resizing of the case neck from the fired condition back to factory length did not result in a busted shoulder or neck. Winchester or Starline brass, by comparison, is quite durable, albeit I tend to use the latter for high-velocity loads (1,600 fps) with up to 21 grains of 2400 with jacketed bullets in Model 92 Winchesters. A Rossi Model 92 copy that was purchased several years ago may have a slightly oversized cham-

ber, since it produced a preponderance of busted cases compared to other rifles. Regardless, I decided to keep the Rossi since it shoots quite well sans busted case problems using Starline brass.

While checking the barrel groove diameter of the newly arrived Winchester Model 73 .44 WCF (the barrel is stamped .44-40 Win.) and double checking a couple of others, it dawned on me that there are more .44 WCF rifles and carbines lined up in the gun safe than any other caliber, albeit closely followed by .45-70s and .38-40s, the latter of which have barrel groove diameters that closely match sixguns, making the handgun and rifle combo idea quite practical. The same holds for .45 Colt revolvers and rifles.

Over the years that the Uberti, Winchester and other historical firearms have come along, reports in various magazines and on television (Someone on TV stated the .45 Colt was unsuitable for shooting beyond 50 yards with blackpowder loads, a subject that will be addressed in this column in the future.) have generally been dismissive, citing parabolic trajectory, open sights and/or whatever as the reason to limit tests to 25 or 50 yards, or for cowboy action use, 15 yards. None of those reports on the .44 WCF, for example, suggest there was any effort to measure bullet and/or barrel diameters. More often than not, there is an accuracy summary that compares two or three factory loads and that's it. They get away with that because it's the basic setup for all rifles, scoped bolt actions or take your pick. When black powder is introduced in tests for a Sharps replica, either from Europe or Montana, the report is strictly apologetic, e.g., fouling, lead bullets and don't forget the inevitable iron/open sights. (Fortunately, the current staff of writers at Wolfe Publishing have the skill to shoot anything that is put in front of them.)

What these characteristically urban writers are really saying, I suppose, is that the average frontier settler or wayfaring trapper was a more highly skilled rifleman than the typical modern gun writer. These are the same people who can program an iPhone or some such to plot the trajectory of their modern, scoped whiz-bang and advocate shooting game at ridiculously extreme ranges but have never bothered to develop the skill to hit a man-sized target at 200 yards, let alone 300 or 400, with an open-sighted Winchester. Simply put, if you gave them an iron-sighted Winchester or Marlin and turned them loose in the wilds of northern Arizona, they would starve or freeze to death in country that harbors thousands of elk, deer and antelope.

At any rate, I'm a retired, old codger now, and that's my opinion and I'm sticking to it. •

.50 Alaskan

BULLETS & BRASS by Brian Pearce

Q: After reading your article on the .50 Alaskan in *Rifle* magazine, I had to have one. It has been a long road, but I finally have a fully customized Marlin Model 1895 with a 20-inch barrel, full-length magazine, X-S sights and other custom touches.

Initially, I bought a couple of boxes of Buffalo Bore Ammunition with the 450-grain LFNGC cast bullets and 450-grain jacketed bullets. Wow, I am impressed with the power and accuracy of the gun and loads.

I am now ready to begin handloading. I have obtained RCBS dies and a quantity of Starline brass but am looking for load data. I have purchased 530-grain Rim Rock cast bullets and some 450-grain Original Barnes jacketed bullets. I hope you can offer data for each of these. Thanks in advance for your help. I really appreciate the great magazine that Wolfe publishes and especially look forward to your articles.

– M.S., Anchorage AK

Hodgdon Benchmark and IMR-4198 powders are ideal for loading the .50 Alaskan with 450- to 530-grain bullets.

A: *When loading the Rim Rock 530-grain WFN-GC bullet, try 55.0 grains of IMR-4198 for 1,900 fps, or try 62.0 grains of Hodgdon Benchmark for 1,800 fps. Seat this bullet with an overall loaded length of 2.477 inches and apply a maximum crimp. Try 68.0 grains of Benchmark with the Barnes 450-grain Original for over 1,900 fps or 61.0 grains of Hodgdon H-322 for 1,850 fps, and seat the bullet with an overall loaded length of 2.43 inches. This data was obtained with a 23-inch barrel (one-in-20-inch twist) and was capped with a CCI BR-2 Large Rifle Bench Rest primer. Your 20-inch barrel will likely produce a small reduction in velocities.*

.32 Winchester Special

Q: Two years ago I purchased a beautiful, special-order Winchester Model 1894 rifle with a 26-inch round barrel, no dovetail for a rear sight, factory-installed tang sight and ivory bead front sight. It has beautiful wood and is in excellent condition with a perfect bore. It is chambered for the .32 Winchester Special cartridge, but I have not been able to find factory loads since the purchase. But I did find three bags of new unprimed Winchester cases at our last gun show. Bullets were another problem, but I finally found two boxes of the 170-grain Speer FN. I have tried some early 1960's era data but have not been satisfied with the

velocities or accuracy, and I think they are too hot. Can you suggest a powder charge that will duplicate original factory ballistics and is accurate?

– S., Cedar City UT

A: *The best information I can gather indicates that original vintage factory ammunition (1901) listed a 170-grain jacketed bullet at 2,112 fps from an unspecified barrel length, which was a notable power increase over period .30-30 Winchester loads. However, today's .32 Winchester Special loads from Federal, Remington and Winchester list the same bullet at 2,250 fps from a 24-inch test barrel.*

So with a targeted velocity of between 2,112 fps and 2,250 fps, I would suggest using 33.0 grains of H-4895 or 35.5 grains of IMR-4320. Both loads are accurate and will more or less duplicate factory load ballistics.

.243 Winchester Varmint Loads

Q: This summer I have a week-

Hodgdon H-4895 and IMR-4320 powders used in conjunction with the Speer 170-grain FN bullet will duplicate original .32 Winchester Special factory load ballistics.

Vihtavuori N140 and Hodgdon Varget powders are top choices for 65- and 70-grain bullets in the .243 Winchester.

long prairie dog hunt planned in Montana and will be taking three rifles. Two of them I have my loads worked out and ready to go, but the third is a Remington Model 700 Varminter .243 Winchester. I would like to use the 70-grain Speer TNT or the 65-grain Hornady V-MAX bullets. I am looking for an accuracy load. So my questions are: Which bullet do you think will be most accurate, and can you suggest a powder and charge weight?

– T.S., Sandpoint ID

A: *Although the Speer 70-grain TNT will give excellent terminal results, my experience suggests that the Hornady 65-grain V-MAX is generally more accurate. However, with proper load development, both bullets can shoot well.*

Using the 65-grain bullet, I would suggest using 41.0 to 42.0 grains of Hodgdon Varget for 3,600 to 3,650 fps from a 24-inch barrel. Another outstanding load includes using 41.5 to 42.5 grains of Vihtavuori N140 powder for about the same velocities. Use a standard large rifle primer such as the Federal 210 Gold Medal or CCI BR-2. I hope you have a great varmint shoot.

.327 Federal Magnum

Q: I just bought a Ruger Single-Seven in .327 Federal Magnum. The problem is that I can't find many of the powders that were covered in your fine article on the .327. I have a supply of Hodgdon H-110 and Titegroup, Alliant Bullseye and Unique. I will be using the Rim Rock cast 100-grain bullet that you covered in the article and also some jacketed bullets of the same weight. Can you suggest load data that will cover these powders? Any help you can give will be appreciated.

– G.L., via e-mail

Hodgdon H-110 powder is a good choice when handloading 100-grain jacketed bullets in the .327 Federal Magnum, while Titegroup is best for cast bullet loads at around 930 fps.

A: *Using the Hornady 100-grain HP-XTP jacketed bullet or the Speer JHP or Gold Dot HP bullets, start with 12.0 grains of Hodgdon H-110, with a maximum charge of 13.2 grains. This will produce over 1,400 fps from a 4⅝-inch barrel. Switching to the Rim Rock 100-grain RNFP cast "Cowboy" bullet seated to an overall loaded length of 1.515 inches, try 3.2 grains of Titegroup.*

This makes a great low-cost, pleasant shooting target load and will reach around 930 fps muzzle velocity. You can bump the charge up to 4.2 grains to increase the velocity to 1,100 fps, but you will need to watch for barrel leading. ●

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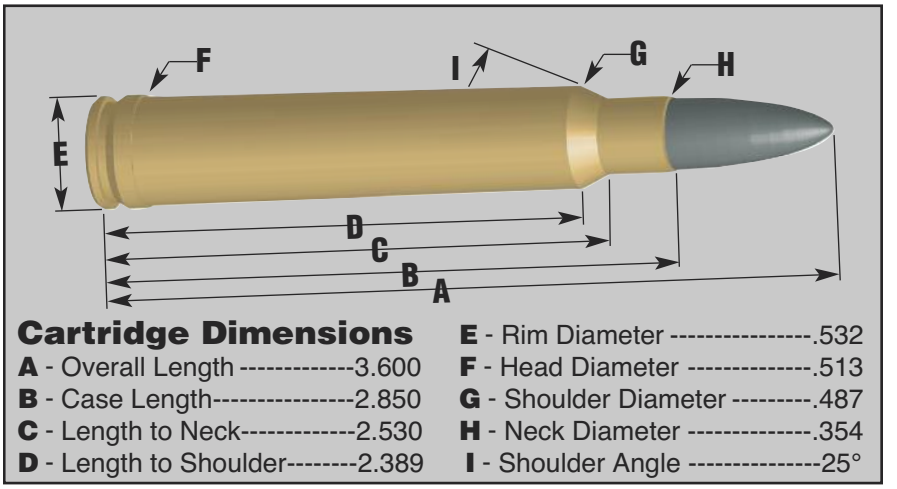
8mm Remington Magnum

CARTRIDGE BOARD by Gil Sengel

The response of most shooters to anyone mentioning the 8mm Remington Magnum (8mm RM) is that they have never heard of it. Some might think it is one of the new vertically challenged cartridges so universally ignored of late. Almost everyone is surprised to learn that it came about way back in 1977.

Remington's catalog for that year simply lists the new round as available in the Model 700 BDL rifle. There is no mention at all in the ammunition section. The publication does, however, include a one-page loose insert picturing both rifle and cartridge, a ballistic table and seven sentences of text.

Despite the lackluster send-off, everything about the 8mm RM was new. It was the first round designed by a major American arms maker to use the full-length belted case. Weatherby's .300 and .340 Magnums perhaps showed the way, but neither rifles nor ammunition were made here, and cost was beyond what most could afford.



Cartridge Dimensions

A - Overall Length ----------3.600	**E** - Rim Diameter ----------.532
B - Case Length----------2.850	**F** - Head Diameter ----------.513
C - Length to Neck----------2.530	**G** - Shoulder Diameter ---------.487
D - Length to Shoulder--------2.389	**H** - Neck Diameter ----------.354
	I - Shoulder Angle ----------25°

Bullet diameter was new to American rounds as well. In Europe the 8mm is similar in use to our .30 caliber. Various cartridges are available to take everything from small deer to large, thin-skinned Asian and African game. Needless to say, these 8mm rounds work just fine.

For what it is worth, 8mm is the *caliber* (barrel land-to-land diameter) or .3149 inch; an 8mm *bullet* is .323 inch (barrel groove diameter). In 1978 the NRA listed measured bore and groove diameters of a Remington Model 700 8mm RM as .3140 and .3235 inch, respectively.

That covers what Remington did, but it doesn't explain why the company did it. This may never be understood.

Consider the long 2.85-inch belted case. Winchester began its series of magnums on a shorter 2.5-inch belted case in 1956. Cartridge experimenters took note. Appearance of the .264 and .338 Winchester Magnums a couple of years later opened the floodgates. Wildcatters instantly necked them up and down to use every bullet diameter that ever existed. Remington even brought out the 7mm-264, calling it the 7mm Remington Magnum, in the early 1960s.

A common thread running through all the advertising, gun magazine articles and hunting stories regarding these rounds was

their ideal length. They were short enough to be used in standard or .30-06 length actions. All sorts of maladies were attributed to actions using longer rounds. Chief among these was "short-stroking," wherein the bolt was not pulled back far enough to either eject a fired case, pick up a fresh cartridge or both. A second shot could not be fired. The object of the hunter's attention then either ran off or waltzed up and bit, clawed or trampled said sportsman. Guess what? The short magnums prevented this from ever happening! Sure they did.

After a few years of this nonsense (and it still goes on), word had gotten around. Many hunters who were not serious riflefolk would not buy anything but a short magnum. So Remington brings out a new cartridge, useful only for hunting large animals, on a full-length magnum case.

Bullet diameter also suffered from perception disorders. It was expressed in millithings, of which few people in this country had any knowledge of or interest in. Shooters' only experience with an 8mm was the military 8mm Mauser whose bullet didn't look any wider than our .30 caliber. We had enough big and little .30-caliber cartridges, both factory and wildcat. Then the 8mm RM's direct competition was the .338 Winchester Magnum, which had been available since 1958. Its bullets were big enough to tell from .30s, and there were no complaints regarding its field performance.

Remington probably figured that since it had hit a home run with the 7mm Remington Magnum, new rifle buyers would also take to a bigger metric caliber. If so, they hadn't considered that the 7mm-264 Winchester wildcat had existed ever since the .264 Winchester Magnum appeared and that it, along with a couple of other 7mm wildcats on the short belted case, had been the darlings of several well-known hunters who wrote articles for the gun and hunting magazines.

As the years went by, success of these 7mm rounds on all varieties of big game was reported as, well, unbelievable. With advertising like that, the only thing unbelievable is that it took so long for a commercial 7mm short magnum to appear.

No such free press existed for the 8mm RM. There weren't even any bullets available to handloaders except 150- to 175-grain numbers intended for the much lower ve-

locities of the 8mm Mauser. Barnes listed a 250-grain softpoint that would have been a good choice, but Americans always want to use extra magnum power to drive light bullets faster, rather than heavier bullets to proper impact velocity, which brings us to 8mm RM ballistic data.

First published numbers show a 185-grain pointed Core-Lokt bullet at 3,080 fps muzzle velocity. This dropped to 2,760, 2,460 and 2,190 fps for 100, 200 and 300 yards, respectively. Energy figures came to 3,900, 3,130, 2,490 and 1,960 foot-pounds (ft-lbs) at the same distances. If sighted 1.8 inches high at 100 yards, the slug was on at 200, 7.6 inches low at 300 and 22.5 inches low at 400 yards.

The other factory offering was a 220-grain pointed Core-Lokt developing 2,830 fps at the muzzle and 2,581, 2,350 and 2,120 fps at 100, 200 and 300 yards. Energy came to 3,910, 3,255, 2,690 and 2,200 ft-lbs at the same distances. Sighting-in had to be 2.2 inches high at 100 yards to put the bullet on at 200, then 8.5 inches down at 300 and 24.7 inches at 400 paces.

The .338 Winchester Magnum used slightly heavier bullets. Its energy was very close to the 8mm RM's figures, bullet drop out to 300 yards so close it wasn't worth discussing, and few people apparently needed a 400-yard elk rifle. By then everyone already knew the shorter .338 was better!

The 8mm RM Model 700 BDL was gone in 1984. It reappeared as the Safari Grade rifle from the Remington Custom Shop in 1986. This lasted until 1993. The 220-grain bullet in factory ammunition disappeared in 1993 also, then the 185-grain slug was gone in 1995. Surprisingly, ammunition again appeared in 1998 using a Swift 200-grain A-Frame softpoint. Muzzle speed was 2,900 fps – 60 fps slower than Winchester's .338 Winchester Magnum loading of a 200-grain bullet. This load remains available today.

Custom rifle makers have continued to chamber for the 8mm RM. Why is a question that's hard to answer. Strangely, Nosler offers three loadings. One uses its 180-grain Ballistic Tip at 3,200 fps, another the 200-grain AccuBond and the third a 200-grain Partition, both giving 3,000 fps at the muzzle.

Recoil must now be mentioned, because everyone who originally reviewed the 8mm RM had a comment concerning it. Some time ago a friend found a used Remington Model 700 that came with several boxes of Remington 220-grain Core-Lokt factory ammunition. A scope was installed and we sighted it in. This took awhile because we had to wait so long between shots – but not to let the barrel cool. Recoil wasn't quite as bad as a .340 Weatherby I was once introduced to, but it was close. The rifle's new owner observed that, "It gets in your face real quick!" I agreed.

The 8mm RM is simply a niche cartridge for which there is no niche. Now, as if jealous of the round's failure, another outfit has introduced an 8mm having slightly less power. Its case is shorter though, making it better than the 8mm RM. It's even shorter than the .338 Winchester Magnum, so it's better than that round and better . . . Oh well, never mind. ●

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Alliant Reloder 23

PROPELLANT PROFILES by R.H. VanDenburg, Jr.

It seems the world of smokeless powder development, while always advancing at a determined rate, has taken a sharp turn upward. Stability, for the last decade or more, has been at the forefront, keeping velocities similar regardless of temperature, and some have become very stable over extremes in moisture content or humidity. The most recent advance to receive publicity has been the addition of decoppering agents designed to keep metal fouling at bay.

Almost all these advances have come as a result of attempting to improve performance on the battlefield. That these same advances have filtered down into canister powders for sporting use is simply gravy for most of us.

Other advances going on include some that improve the manufacturing process allowing powders to be made faster and, presumably, at lower cost. These changes will also be seen at the canister powder level but without any advertising fanfare. If things go according to plans, consumers will not notice a thing.

The Alliant Powder Company has decided to jump into the fray with additions to its Reloder series. Reloder 23, the subject of this column, is the first. It is manufactured by Bofors, the Swedish firm responsible for the manufacture of most of the Reloder powders. The goal of Reloder 23 is to provide performance similar to Reloder 22 but with an enhanced ability to maintain its velocity and pressure across the temperature spectrum and to improve lot-to-lot consistency. It does that through what is referred to as TZ technology (a trademark of EURENCO Bofors AB). Additionally, Reloder 23 has a decoppering agent to reduce metal fouling, and the powder no longer contains the stabilizers dinitrotoluene (DNT) or dibutyl phthalate (DBP). All this should benefit long-range shooters more than those of us who hunt close, but that's the idea. Through improved bedding, bullets and sighting equipment, long-range shooting is enjoying a resurging popularity.

According to Alliant literature, Reloder 23's optimim use is "standard and magnum rifles." Under "remarks" in the *2015 Alliant Reloader's Guide* are "consistent across temperature extremes, versatile and consistent." It is, according to Alliant's placement, slightly slower burning than Reloder 22, but this seems to vary according to cartridge and bullet weight, a condition shared by almost all powders. This placement also puts the powder in the same neighborhood as Winchester 780 on the faster side and Vihtavuori N165 and IMR-7828 on the slower.

As with all in the series, Reloder 23 is a double-base, extruded powder. Dimensionally, its length is about .058 inch and its diameter .040 inch. Bulk density is .900 g/cc. The nitroglycerin content is 7 percent.

In researching Reloder 23, about 15 cartridges were found for which Alliant has developed data, ranging from the .243 Winchester and 6mm Remington to the .338 Remington Ultra Mag. There were also several instances where Reloder 22 and Reloder 25 were used but not Reloder 23. It seemed logical to try some of them as well.

In the .243 Winchester, the powder was paired only with 100- and 105-grain bullets. I limited my test to Sierra 100-grain spitzers, the flat-based Pro Hunter. The 43.5-grain charge settled on worked very well, duplicating Alliant's best velocity for the bullet weight with decent extreme velocity spreads and group sizes.

In the .25-06 Remington, there

was some necessary parsing of the data, as I was unable to match the components used in Alliant's efforts. My 100-grain load was a good one, matching Reloder 22 speeds but a bit under Reloder 23 published results. My powder charge could no doubt have been increased, but to little end. My Hornady 117-grain SST load was even better, consistently equaling Alliant's results.

The .270 Winchester was next. Alliant only listed Reloder 23 with 150-grain bullets, but performance was quite satisfactory.

There was no Reloder 23 data with the .30-06, but there were recipes with Reloder 22 with 180- and 200-grain bullets. It seemed likely that Reloder 23 would perform as well and, boy, did it, with the lowest extreme velocity spreads and standard deviations of the entire tests and quite satisfactory velocities: 2,700 fps with 180-grain bullets from a 22-inch barrel is nothing to be sneezed at; or 2,535 fps with a 200-grain bullet, for that matter. Much better than expected to be sure.

The .300 WSM was another for which there was no Reloder 23 data, but Reloder 22 was there so I plowed ahead. The 165-grain bullet performance was very good: small extreme spreads and groups with comparable velocities. The 180-grain loads fell short as I ran out of room for powder before hoped-for velocities could be generated. The listed load would certainly be a good performer, but there are better powders if top speeds are required.

The .300 Winchester Magnum was next with plenty of Reloder 23 data. The same 165- and 180-grain bullets were used and performance was spot on. This is a good match.

All in all, this new powder seems to provide something for everyone: consistent performance from shot to shot and from lot to lot with minimal metal fouling and accuracy equal to the gun's and shooter's capability. It is available in 1- and 8-pound packaging. ●

Selected Loads
Alliant Reloder 23

cartridge	bullet (*grains*)	charge (*grains*)	velocity (*fps*)
.243 Winchester	100	43.5	3,039
.25-06 Remington	100	53.0	3,227
|	117	48.5	2,991
.270 Winchester	150	57.5	2,978
.30-06	180	61.0	2,709
|	200	57.0	2,535
.300 WSM	165	71.0	3,134
|	180	66.5	2,894
.300 Winchester Magnum	165	78.0	3,162
|	180	77.0	3,078

Notes: All primers were Federal 210, except .300 WSM and .300 Winchester Magnum, which used Federal 215. All velocities were recorded at 10 feet from the muzzle.

Be Alert – Publisher cannot accept responsibility for errors in published load data.

R&D .45 Colt Conversion Cylinders

FROM THE HIP by Brian Pearce

The Ruger Old Army .44-caliber, "cap-and-ball" revolver was introduced in 1972, while a stainless steel version appeared soon thereafter. It is a revolver for the modern shooter, and it features a solid frame, adjustable sights (a fixed sight version was added later), piano wire coil springs, stainless steel nipples, an unusually stout loading lever and positive latch. The accuracy of these sixguns has always been impressive as I have seen several guns that would keep six shots inside 2 inches at 25 yards, and on a few occasions groups have been produced that measured around .75 inch center to center. In the first 20 years of production, more than 120,000 units were sold. Unfortunately, Ruger chose to discontinue production in 2008, with total production figures being undisclosed. Today they are sought after by shooters and collectors alike.

In spite of its name, the Old Army .44 actually utilizes roundballs that measure .457 inch, or is technically a .45 caliber. When these oversized bullets are seated into the chamber mouth, measuring .4525 inch on both of my revolvers, they are "shaved" slightly as they are seated to create the important seal. The barrel groove diameter associated with the Old Army is usually between .451 and .452 inch, and barrels are made from the same stock that Ruger uses on the various Blackhawk, New Model Blackhawk, Vaquero and variant revolvers chambered in .45 Colt. As a result, it is ideal for the .45 Colt conversion cylinder manufactured by R&D.

Several years ago the R&D conversion caught my eye, and one was ordered to fit my Ruger Old Army with blue finish, which required some light gunsmithing to achieve proper fit and function. More recently I ordered another cylinder from Brownells (www.brownells.com; 1-800-741-0015), but this time in stainless steel, which dropped right in my Old

Left, the R&D .45 Colt cylinder (right) replaces the original Ruger percussion cylinder (left). Right, the R&D .45 Colt cylinder features a breech plate that contains six firing pins, and it is installed after loading cartridges.

Army stainless without modification to the gun or cylinder. Timing is good, the bolt drops properly, cylinder end-shake is minimal, and the barrel/cylinder gap is just .002 inch. The cylinder displays top-notch quality and machining. Chambers are uniform and each "ranges" with the axis of the bore. Chamber throats measure .4525 inch, which is perfect with today's components.

To correspond with the unique action of a cap-and-ball revolver that does not have a firing pin, the R&D .45 Colt cylinder has some unique design features that are clever and patented. For example, it features a breech plate that contains six firing pins and is drilled with six holes to allow the hand to engage and rotate the cylinder. There is a stake pin that prevents the plate from rotating independently from the cylinder. Chambers are counterbored and feature a small slotted window beside each chamber so that the "empty chamber" can be identified and placed under the hammer to prevent firing when carrying the gun in the field. It is made from arsenal-grade, certified steels and is precision-machined and beautifully finished.

When using the R&D cylinder, it is much easier to remove the revolver's loading lever assembly and bullet rammer (as they are no longer needed) and use only the base pin. This allows the cylinder to be loaded and installed quickly.

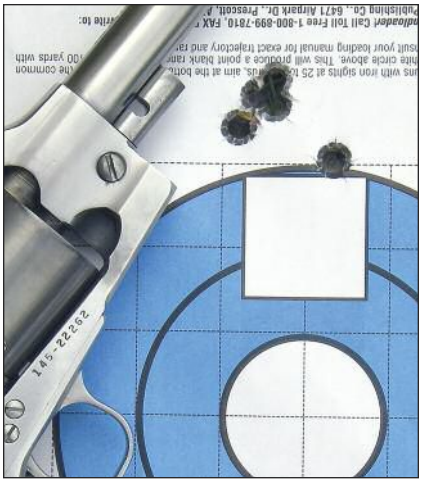
To load the cylinder, remove the breech plate, place cartridges in the chambers, replace the breech plate, then install the cylinder, and it's ready to fire. Be certain to "turn" or engage the base pin retaining pin to prevent the former from jumping during recoil. When carrying this revolver, load only five cartridges and place the empty chamber under the hammer to prevent accidental firing if the hammer is struck or the gun dropped. Incidentally, many percussion revolvers were designed to be fully loaded, with the hammer resting between chambers to prevent firing. However, with the

R&D cylinder breech-plate design, if this is practiced, the cylinder can easily turn, resulting in the hammer resting directly on one of the firing pins. To prevent damage to the firing pins and bushings, dry firing is not recommended.

It only took around 30 to 35 seconds to pull the base pin, remove the cylinder, load five cartridges and reinstall the cylinder and fire five shots.

R&D recommends that its cylinders (also made for other percussion revolvers) be used with standard pressure loads. All loads discussed here are within industry pressure limits, or 14,000 psi.

Using a .45 Colt handload with 255-grain cast bullets from Lyman mould 454190 pushed with 6.2 grains of Hodgdon Titegroup and ignited with CCI 300 primers (around 870 fps), the Ruger Old Army grouped inside 2.0 inches repeatedly at 25 yards, with one group going into 1.40 inches.



Using 250-grain bullets handloaded to around 870 fps, point of impact at 20 yards was 3 to 4 inches high.

With the rear sight adjusted completely down, point of impact was around 3 to 4 inches high. Remedies include replacing (or modifying) the rear sight blade with a lower profile version, or changing to a higher front sight blade. Going to a lighter bullet is another option, but I prefer standard weight bullets.

Another load tried included the Oregon Trail 250-grain RNFP cast bullet pushed with 6.8 grains of Accurate No. 2 powder for around 860 fps. This load also proved accurate, with some of the better groups hovering between 2.0 to 2.5 inches.

Last, the Hornady 250-grain XTP-HP was loaded with 9.0 grains of Alliant Power Pistol powder for 902 fps. After getting the barrel fouled and settled in with the jacketed bullet load, the best group measured 1.20 inches at 25 yards, with one group going just over an inch at 20 yards.

The new R&D .45 Colt cylinder opens new possibilities for the Ruger Old Army .44 percussion revolver and is a precision-made product. Since cylinders are classified as a "part" by BATF, no FFL is required to purchase one and make the conversion to .45 Colt, and they can be ordered directly from suppliers. •

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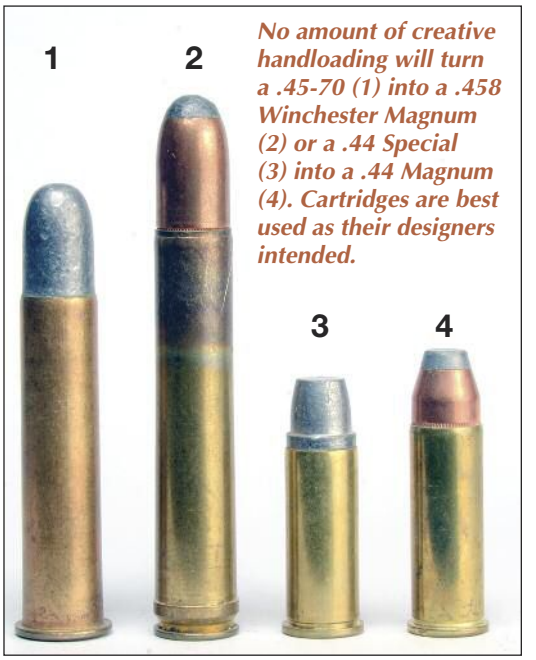
Best Intentions

MIKE'S SHOOTIN' SHACK by Mike Venturino

No responsible handloader sets about to produce dangerous ammunition. Yet it happens too often, and I feel that some of the errors have been propagated by gun writers, albeit with the best of intentions. What I am talking about are articles, mainly from the past, about loading one or another cartridge so that it is performing above its intended purpose. How many times have you read such things as: "This load puts the (name a cartridge) into the lower realm of magnum velocities." One that especially bothers me now in my 43rd year as a .45-70 handloader is, "This load in a suitably strong rifle brings the .45-70 near to the .458 Magnum."

On the other end of this problem are those cowboy action shooters who want to use big-bore revolvers in the game but want them to perform like a .38 Special. I cannot count the number of times I've been asked what powder charge to use in a .45 Colt with light 160-grain bullets.

Right here I want to admit that in my younger years as a gun writer I was guilty of the same sort of nonsense. I loaded .44 Specials with some of Elmer Keith's old recipes so they were "nearly .44 Magnums." In 1988 I was fortunate enough to buy a target-sighted Smith & Wesson Hand Ejector 1st Model .44 Special, also known as the "triplelock." Immediately, and stupidly, I quickly loaded some very hot .44 Specials for it. The first hint that such was not a good idea was the pain in my hand caused by its thin grips. The second hint was that its cylinder fell open. Luckily the revolver wasn't harmed, and in the ensuing quarter-century, that fine, old treasure has never been shot with anything exceeding standard factory loads.



No amount of creative handloading will turn a .45-70 (1) into a .458 Winchester Magnum (2) or a .44 Special (3) into a .44 Magnum (4). Cartridges are best used as their designers intended.

Even before my gun writing career, I tried one of Elmer's .45-70 loads in a newly acquired Marlin Model 1895 set up with a Weaver 3x scope. The scope cut I got from the first shot was horrendous, and there was blood seeping into my shirt from my shoulder's split skin. That stopped my "magnumizing" of .45-70 handloads, but it was still many years before the true realization of such folly hit me: Any .45-caliber bullet of 400 grains or more fired in excess of 1,300 to 1,400 fps at an American game animal is just going to make a bigger divot in the ground on the animal's offside. I know this from shooting and watching others shoot one-ton bison bulls with .45-70 blackpowder handloads and seeing their bullets crater the ground after complete diagonal penetration.

The very first pronghorn I shot was with a Winchester Model 54 .257 Roberts, which someone before me had altered for scope use. My handloads were "into the lower realm of .25-06 velocities." The 100-grain bullet at 3,200 fps flattened on the buck's shoulder with zero penetration. Luckily, the second bullet slipped between ribs and felled the buck. From that experience I learned – as in switching to 117-grain bullets at 2,800 fps. Thereafter, every deer or antelope shot with the .257 was penetrated completely.

Trying to load big cartridges down instead of up can have its pitfalls too. One problem is ballistic inconsistency. Too little powder can

result in misfires and hangfires. Even ammunition factories are not immune from this problem. I have on hand the remainder of a box of factory .32-20 WCF loads with 100-grain jacketed soft-point bullets. A friend demonstrated the problem. When fired from a revolver pointed uphill, they go *BANG*. When fired level, the report is *bang*. When fired downwards, the shot gives a *fizz* sound, and the bullet sticks about 3 inches into the revolver's barrel. We repeated this over five times, and the results were exactly the same.

Luckily for handloaders, Hodgdon Powder Company saw fit to develop IMR's Trail Boss propellant. It takes up more volume compared to its weight in grains. It is my "go-to" smokeless powder now when handloading voluminous revolver cartridges originally developed for black powder.

Then there is this idea: When wanting less power from a .45 Colt, instead of putting less powder in its huge case, just go to shorter .45 S&W Schofield cases for lighter loads. The same process works fine when applied to .44 Magnum and .44 Special or .357 Magnum and .38 Special. Heck, if someone really wants to weenie out, how about going to .44 Russian or .38 Long Colt instead of putting less powder in bigger cases.

It is far better to go to a shorter cartridge of the same caliber when desiring less power, rather than using less powder in large-volume cases: (1) .45 Colt, (2) .45 S&W Schofield, (3) .44 Magnum, (4) .44 Special, (5) .44 Russian, (6) .357 Magnum, (7) .38 Special, (8) .38 Long Colt.

The simple fact is that a .30-06 with 180-grain bullets at 2,700 fps will kill an elk or a moose just as dead as when loaded "into the lower realm of the .300 H&H magnums." A 7mm Mauser bullet will slay just as well as a .280 Remington bullet going 100 to 150 fps faster. Handloading cartridges as they were designed and developed will result in longer case life, less strain on guns and is far safer than trying to make a cartridge perform otherwise from what it was intended. •

Reinventing the Wheel . . . Again

PISTOL POINTERS by Charles E. Petty

Every time a new powder or bullet comes along, handloaders face a monumental challenge. Do we really need to try to find a new wheel? I think it is hard-wired into the American DNA to search for the *best* of whatever. When new "whatevers" come along annually, we feel obligated to try them; but there is another side to that coin too, since curiosity is rarely inexpensive.

The technology we use is pretty well developed – some would say ancient – so the chances of earth-shaking advances are few but that certainly doesn't prevent ambitious marketers from telling us otherwise. Facts sometimes become foggy along the way. We see new cartridges accompanied by claims of superiority even if a little research might reveal it to just be the same as something we had 50 years ago in a different-looking package.

One of the things handloaders really have to watch out for is a claim of superiority based on small numbers of results that may look nice but might not withstand statistics or significant figure study. So if we get something that is 25 or even 50 fps faster, is that really an improvement or just the inevitable mood swings of chronographs and weather?

Out with the old and in with the new.

Bore cleaners are another group of products that can provide great opportunities for claims that are not easily proved. Two favorites deal with carbon. Carbon is number 6 on the periodic table, a very plentiful element in stuff like gunpowder. So solvents "dissolve" it, but that makes folks think it just goes away. What actually happens is a minor chemical reaction where carbon hooks up with something else to become a soluble compound that can be washed away. The carbon is still there just in a different form.

One of our newest powders is called CFE for copper fouling eraser. Hodgdon has some for both rifles and handguns. It is actually a very useful powder in both, but if you have a bore with heavy copper fouling and shoot CFE, the copper is still going to be there. What it will do is make it easier to clean.

Even though the basic chemistry of powder hasn't changed in a century or more, the manufacturing process has. Of course, the whole thing is deeply cloaked in proprietary secrecy. Better ways to control the powder grain size and porosity have been found, and there are a number of chemical additives used in small quantities to moderate burning rates or muzzle flash. How the powder is dried can be a factor in burning rate and also how completely the powder burns. The problem is, many of the improvements are proprietary, and manufacturers don't want the competition to learn something from what I write. I've heard that a lot, and respect it, even though I'm pretty sure, for example, Hodgdon's chemists are just as smart as the next guy's, so the real secret

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may just be whether they use 1 percent or 2 percent pixie dust.

The most important thing in powders these days is that the maker can target or "tweak" a powder for a very narrow niche, maybe just a single cartridge, so many new powders we see may have a limited application.

Most reloaders are sorely tempted to try anything new that comes along. I'm guilty too, but the realities of component shortages these days seriously limit the amount of testing most of us can do, and long ago I learned that a load that seems wonderful on first blush may fare miserably next time. When we hear glowing reports about a load or gun, we need to find out how that conclusion was reached. More than once I've seen rave reviews bragging about a one-hole group fired at 10 yards, one-handed, rapid fire.

Two short-lived rounds: The only thing wrong with them was few bought them.

Pistol shooters have it easy compared to the rifle guys. All they have to do is change the neck angle or case length and call it "new." Someday soon someone will doubtless bring forth the mythical .29 caliber. Evidence to the contrary notwithstanding, it seems as if the American shooter is determined to want the best of everything, and sometimes the word *new* triggers a feeding frenzy.

In all my years doing this stuff, the only new handgun cartridge to achieve real success has been the .40 S&W. The 10mm Auto has a small following, but most other *new* rounds are euthanized by public opinion . . . or lack thereof. The latest candidate is the .327 Federal Magnum. It is probably what the .32 H&R should have been in the first place, but then again, the .32 H&R isn't exactly a barn-burner either.

Another interesting cartridge that sounded like a good idea at the time was the 9mm Federal. Simply a rimmed 9mm Luger, Federal developed it for a Canadian law enforcement agency in 1989, and a few revolvers were chambered for it. The American public greeted it with a yawn, and when the Canadian agency switched to an automatic pistol, it quietly passed away in the early 2000s. Another, even shorter lived, is the Federal .356 TSW (Team Smith & Wesson),

roughly 9x22. When the team went away, so did the cartridge.

Two new cartridges that seem to be circling the drain are the .357 SIG and .45 GAP (Glock Automatic Pistol). Both arrived to great hoopla and fanfare. The SIG was said to duplicate the .357 Magnum in a pistol, and in my experience it comes close. Several writers pronounced the little bottleneck case to be an asset for feeding reliability, and it certainly was reliable, but so are the modern service pistol competitors: 9mm Luger, .40 S&W and .45 ACP. The GAP's claim to fame was performance equal to the ACP in a smaller pistol. The 0.14-inch shorter case did fit the 9mm frame size, but the reduction in case capacity pushed pressures up. It seems to come up short in cost/benefit analysis.

I guess there will always be a demand for faster bullets, but the mechanical limits imposed by something called a "handgun" are well defined and leave little room for more. So when we get a new powder, the temptation is there to see if we can find just a little more room in the envelope, and somewhere along the way we will crash headlong into the law of diminishing returns. While that came along from the field of economics, corollaries exist in many areas, including most parts of shooting.

Most of us load for a number of guns, each with different needs and abilities, so the first thing we must do is identify those so we can craft our loads appropriately. If your most difficult target is a soda can at 25 feet, the task is easy: Find a load combination that hits the can and functions reliably in anything you shoot – and have fun.

I like to think of this in terms of cost versus benefit. Many problems can be solved or improved simply by throwing money or labor at them, and sometimes shooters do that. They can spend hours "prepping" cases or small fortunes on custom bullets to gain the merest fraction of an inch in group size. For some the benefit is worth the cost, but for the average shooter, it is easy to go overboard. All shooting activities are three part equations with variables involving the gun, ammunition and shooter. By far the greatest of these is the human being, but that is often the last place we want to look.

Along with news of the new stuff came notice of the discontinuance of several, such as the old DuPont SR (sporting rifle) numbers and PB (pistol bulk) that seemed obsolete when I was a kid. The bottom line here is simple business: If sales are not sufficient to support continued production and inventory, it should go. In this industry, a lot of stuff stays in catalogs long after it became moribund. A wisecracking friend, when told of PBs passing, quipped: "And I bet both the guys who still use it complained." ●

The Perfect .250-3000

Well . . . Almost Perfect

Terry Wieland

The .250 Savage has been exclusively a handloader's cartridge for a dozen years now. All the major ammunition makers had discontinued factory loads by 2010, and even factory brass became hard to come by, but that was merely a formality.

The .250 Savage has *always* been a handloader's cartridge, if you are the kind of shooter who looks for both accuracy and velocity. Although the .250-3000 (its original name) is hailed as the first American factory cartridge to break the 3,000 feet per second (fps) barrier, what you were promised on paper and what you got, in fact, were often two different things.

This Savage Model 1899 E (circa 1922) shot its best big-game groups with Sierra 90-grain HPBTs powered by 33.0 grains of Hodgdon Benchmark. Although the three-shot (cut out) group was the best it shot, at 1.0 inch, it averaged around 1.5 inches with that load.

This is not to take anything away from the .250 Savage. It was a pioneer, and experience with it led directly to the .270 Winchester and all the high-velocity hunting cartridges that came along afterward. The .250 and its designer, Charles Newton, deserve an honored place in the annals of twentieth-century riflery, but that does not alter the fact that the .250 had some problems. If it was a trail-blazer, it was not only because of its velocity. Other problems showed later cartridge and rifle designers some serious issues of which they had to beware.

It should be said at the outset that there is nothing whatever wrong with the .250 Savage as it stands. It's a neat little cartridge capable of punching well above its weight. The limitations were placed on it by the rifles in which it was chambered – mainly the Savage Model 99 lever rifle. You can't send a fighter into the ring with handcuffs on his wrists and his ankles shackled and expect him to win, but essentially that's what Savage did.

The problems began when Savage ignored Charles Newton and imposed changes on his design. As Newton intended it, the .250 would fire a 100-grain bullet at 2,800 fps. Savage, however, wanted to hit the magic 3,000 fps mark set earlier by the .280 Ross. To do so, it reduced bullet weight to 87 grains and called it the .250-3000.

From 1915 onward, Savage chambered a wide variety of Model 99s in .250-3000, with barrel lengths ranging from 20 to 24 inches. Since they catered to any custom order that came in, today you might find a barrel as short as 18 inches or as long as 28. Because it was marketing ammunition with only the 87-grain bullet, Savage settled on a rifling twist of one turn in 14 inches. This twist was slow for smallbores even by the standards of 1915, but it worked well enough if the bullet approached the 3,000 fps mark. Alas, many did not.

When production of civilian rifles resumed after 1918, no one owned a chronograph and few hunters used riflescopes. Published velocity figures were accepted as gospel, and since the .250-3000 was a hunting cartridge and the Model 99 a hunting rifle, the combination was not subjected to much serious testing on paper. At normal iron-sight ranges, out to 150 or 200 yards, it established an excellent reputation as a deer and bear cartridge, and that was that.

On larger game, however, the .250's record was spotty. Some kills were spectacular, but in other cases the light bullet overexpanded and lacked penetration. In 1932, the Peters Cartridge Company finally loaded the cartridge with a 100-grain bullet at 2,800 fps, but Charles Newton was not around to see it. He died early that year.

This new combination, intended to solve the .250's problems, actually made some of them worse. The major issue was the rate of twist. Had that been set at one in 10 inches from the outset, many of the difficulties would have been forestalled. As it was, the 14-inch twist would only stabilize a heavier bullet (100 grains or more) if it reached a velocity which, in most 99s, was impossible.

The interwoven problems of the .250-3000 are confusing. A bullet must spin to stabilize, and the rate of spin is determined by the rate of twist and the velocity. A longer, heavier bullet requires a higher rate of spin. This can be provided by either a tighter twist or a higher velocity. As an example, the 6.5x55 Swedish cartridge, introduced in 1894, was chambered in a carbine with a barrel only 18 inches long. Its original military 156-grain bullet had a muzzle velocity of 2,295 fps, and the barrel was given a twist of approximately one in 8 inches. This stabilized the long bullet quite

The Nosler 110-grain AccuBond, loaded in the .250 Savage to a maximum overall length to fit the Savage 99 magazine, severely encroaches on powder capacity.

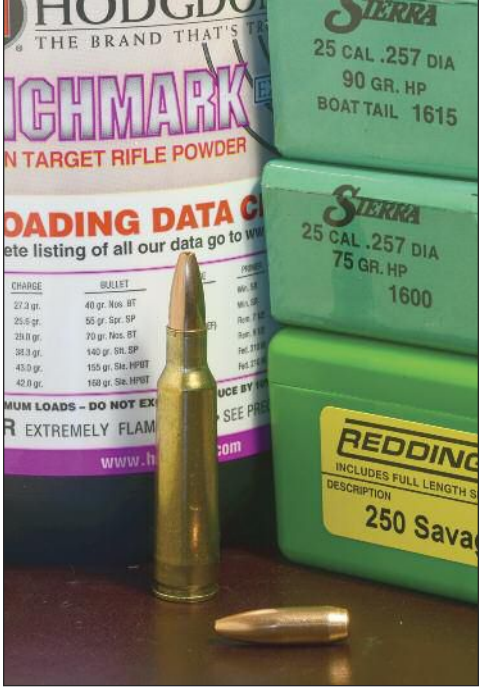
Neither the Sierra 75-grain HP nor its big brother the Sierra 90-grain HPBT encroaches unduly on powder capacity in the .250 Savage case. Both are accurate and can be stabilized at attainable velocities in a 1-14 twist bore.

The Perfect .250-3000

happily, and the 6.5x55 went on to establish an enviable record as a long-range target cartridge.

Various methods exist to determine the rate of twist required to stabilize bullets of different configurations at specific velocities or, conversely, the velocity required to stabilize a certain bullet at a particular rate of twist. These can be found on several Internet sites and usually consist of boxes where you insert your data and the program computes an answer. Without going into detail about them, suffice to say the results from one do not always correspond with another. The problem is that they rely on data, such as a bullet's specific gravity, that can only be approximated. In the end, the information serves as a guide, but the proof will be in how your particular rifle performs.

For the layman, the real problem lies in defining the bullet itself. Some programs rely on bullet length, others on the bullet's specific gravity, and still others assign a value depending on whether the bullet is made of lead, copper or a combination of the two. Bullet length is critical, but shape also plays a role. In the end, the most practical approach is not to look for a definitive answer but to find a guide to what is needed and then see how it works in practice. All these programs make the point that when a bullet falls into the "marginal stability" zone at a particular velocity with a particular twist, what works well in one rifle may not in another.



Above, the difference in bullet length among the Sierra 75-grain HP, Sierra 90-grain HPBT, Swift 100-grain Scirocco and Nosler 110-grain AccuBond makes a huge difference in both the rate of twist required and the powder capacity to provide the necessary velocity. Right, the optimum big-game load in the .250 Savage is a Sierra 90-grain HPBT ahead of 33.0 grains of Benchmark.

The 1962 *Gun Digest* printed a graph and mathematical calculations that allow you to do manually what computer programs do digitally, and while it is more time-consuming, I've found the results to be more useful in specific cases. The presence or absence of a boat-tail changes the calculations appreciably, for example, and the manual formula gives a method of allowing for this; the digital ones I have seen do not – at least, not directly. And, too, there are degrees of boat-tail.

Having a computer program tell you the twist is too slow is not very helpful. There is, after all, nothing you can do about it except rebarrel the rifle. Conversely, though, you can attempt to increase velocity to compensate. This is where the limitations of the .250-3000 come into play. Maximum overall cartridge length is 2.45 inches, and anything longer will not fit the magazine. Longer bullets must be seated deeper, which encroaches on powder capacity. Since a heavier bullet requires a slower powder to achieve maximum velocity, which requires packing more powder into the case, this is a major limiting factor.

Finally, the Model 99's various barrel lengths have a significant impact on muzzle velocity. Shooting 11 different loads from a Model 99 E (1922 vintage) with a 22-inch barrel and a Model 99 EG (1950, 24 inch), the average difference in muzzle velocity was 130 fps! That is 2.5 times the usual formula for velocity loss per inch of barrel, which is 25 fps (50 fps for a 2-inch difference). Obviously, a load that works well in the long-barreled Model EG might be a complete failure in the short-barreled Model E.

Herein lay the problems with factory loads in the .250-3000. Even with an 87-grain bullet, Model 99 carbines did not get anywhere near 3,000 fps. With the later 100-grain load, they were hopeless.

The search here was for an accurate big-game load for the short-barreled Model 99 E. Fitted with a Lyman receiver sight, this would be a wonderful stalking rifle at ranges out to 250 yards.

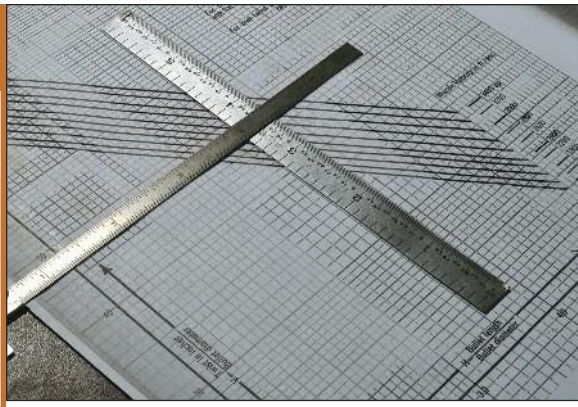
Table I

.250-3000

Velocity Versus Barrel Length with Representative Loads

bullet (*grains*)	powder	charge (*grains*)	muzzle velocity (99 E) (*fps*)	muzzle velocity (99 EG) (*fps*)	velocity difference (*fps*)
100 Sierra SBT	H-414	38.0	2,684	2,877	193
100 Hornady InterLock	Varget	35.2	2,677	2,885	208
100 Nosler Ballistic Tip	H-4895	33.5	2,739	2,902	163
100 Nosler Partition	IMR-3031	32.0	2,677	2,746	69
90 Sierra GameKing	Benchmark	33.0	2,858	2,982	124
87 Speer	Benchmark	32.5	2,848	2,954	106
87 Sierra	Benchmark	32.5	2,861	2,938	77
75 Sierra HP	IMR-4166	34.5	2,817	2,958	141
75 Sierra HP	Benchmark	33.0	3,039	3,181	142
100 Winchester Silvertip factory			2,620	2,773	153
100 Remington PSP factory			2,686	2,747	61

Be Alert – Publisher cannot accept responsibility for errors in published load data.



The twist-rate chart and formula from the 1962 Gun Digest *is, in some ways, more useful than computerized twist-rate programs. It makes allowance for boat-tails and allows the user to see at a glance how adjustments will affect the twist or velocity required.*

The Sierra 90-grain HP (#1615) is an excellent bullet for medium game. Although listed as a varmint bullet, its heavier construction holds together on tougher animals, and being a Sierra, accuracy is unquestioned. It is a boat-tail design. One Internet twist formula says this bullet needs to reach 2,950 fps for stability with a one-in-14-inch twist. The *Gun Digest* chart, allowing for the boat-tail, says 2,600 fps. A second digital calculation, using the program on the Berger Bullets website, advised that the bullet would be only marginally stable at 2,600 but added that 2,950 was not much better. The only way to get a definitive answer was to shoot it and see.

For comparison, I also loaded a series with the Sierra 75-grain hollowpoint. If the Model E would shoot accurately with that, which according to my chart would stabilize at anything higher than 1,100 fps, then in theory it should be made to shoot with the 90-grain bullet, provided it could be stabi-

(Continued on page 65)

9mm Luger Ball

Handloads for Use in Multiple Pistols

Mike Venturino
Photos by Yvonne Venturino

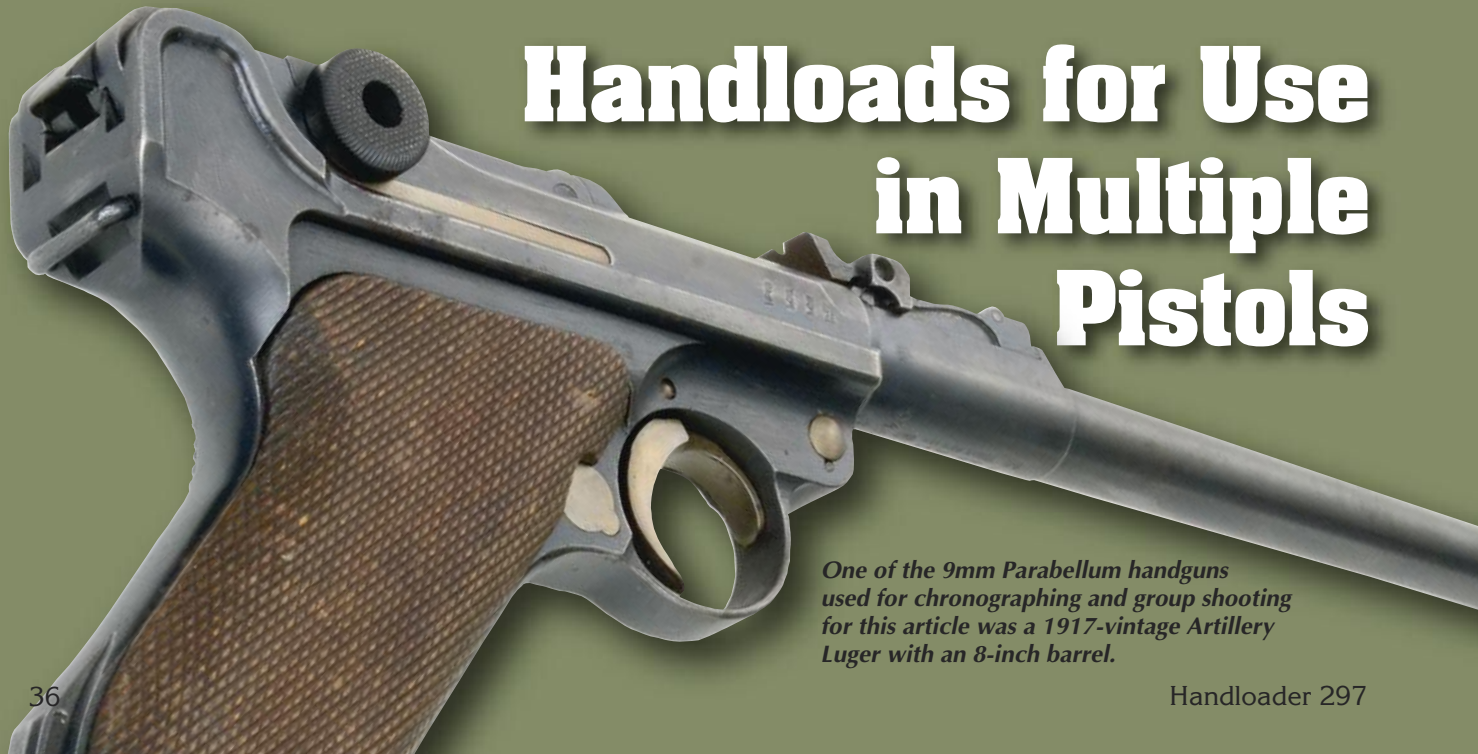
Contained in every modern-day article about reloading for the 9mm Parabellum is plentiful information about jacketed hollowpoint or softpoint bullets. Obviously such is important to those using 9mms for home/self-defense or even small-game hunting.

None of it means a thing to me. I do have a couple of "modern" 9mm pistols that are continuously stored with good factory loads containing JHP bullets, but I own seven other 9mm pistols as part of my military collection. They range from a 1917 German Artillery Luger with an 8-inch barrel to a 1944-vintage Hi-Power (Browning) made by the John Inglis Company of Canada. Hi-Powers have 4.63-inch barrels. (My collection also contains an original German MP40 "machine pistol" and British STEN Mk II "machine carbine." We Americans call such things "submachine guns.")

The most important factors regarding 9mm handloads are three. First is safety; all the guns mentioned above are expensive, so I want no mishaps. Second is frugality; feeding so many 9mms, especially the sub-guns, can eat up prodigious amounts of components. Third is reliability; no one wants to spend their precious free time clearing habitually jammed autoloading firearms. Many handloaders would add in a fourth factor – precision, also known as accuracy. I don't require target-grade groups from my vintage military 9mms, because they are only used recreationally on steel targets, but at the same time, I don't want tumbling bullets – a factor discussed shortly.

My 9mm requirements add up to ball-type handloads. In other words, bullets need to be solid roundnoses but are not limited to FMJs. Hard-cast bullets work well – sometimes. Again, back to that point shortly.

First, a few comments on reliability. Since buying my first military 9mm in 2007, I've fired many thousands of rounds through them as the collection increased. I've learned certain things that are facts and others that are my opinions. One fact is that German Lugers



One of the 9mm Parabellum handguns used for chronographing and group shooting for this article was a 1917-vintage Artillery Luger with an 8-inch barrel.

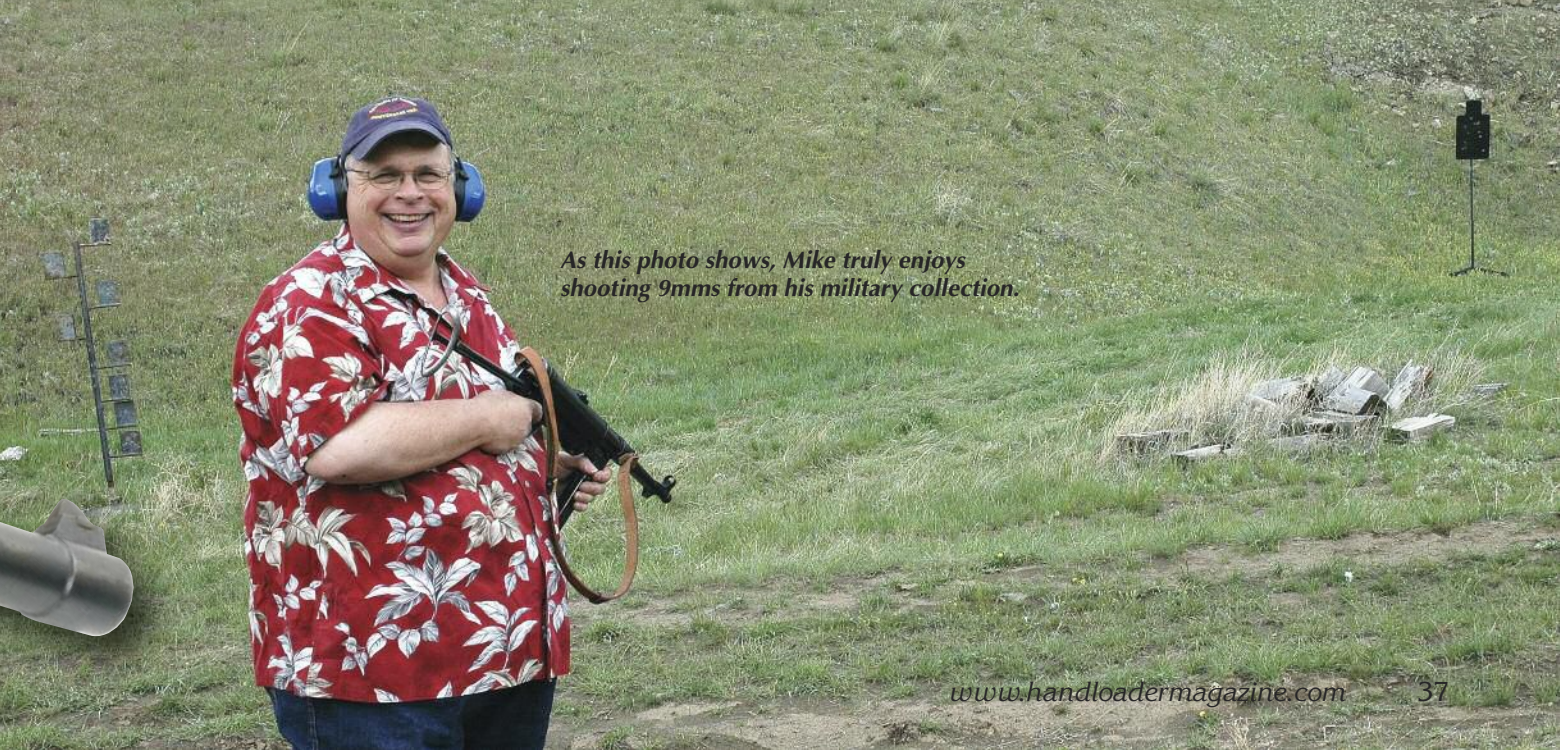
are finicky. One of mine is dated 1938 and was made by Mauser. One time when chronographing with it, my sample loads included Federal 115-grain FMJ factory loads and some military surplus marked NATO FC '86. Cartridges from those two boxes were visually identical, but the commercial 9mms fed flawlessly through the Luger while the NATO rounds would not feed at all, even from the same magazine. They had to be inserted into the chamber individually. I want to stress that not even the tiniest difference was discernible between the two batches of cartridges *and* I'm pretty sure the FC on the NATO rounds' headstamps denotes manufacture by Federal. Go figure?

On the other side of the reliability coin are the Hi-Powers, either of Canadian or Belgian manufacture. I have two of the former and one of the latter. After many hundreds of rounds fired through the three collectively, I have yet to experience a stoppage of any sort. That is with factory loads, handloads, cast bullets, jacketed bullets, ball-type loads or any sort of modern JSP or JHP bullets. John M. Browning, and the Belgian Fabrique Nationale (FN) engineers who finished the design work after his death, did a most admirable job of autoloading pistol development.

That is exactly why one of the handguns chosen to use as a test vehicle in load development for this article is a Browning (FN) Hi-Power. Only it is not one from my collection. Instead, I wished to see just how those pistols are in today's world so asked Browning for a loaner. This new Hi-Power is very well made and is all steel except for the synthetic grips. Marked "Made in Belgium; assembled in Portugal," it differs slightly from my World War II-vintage Hi-Powers in that it has white dot sights. They are the fixed type with both front and rear contained in dovetails atop the slide. Thusly they can be moved laterally for windage adjustment or replaced with taller or shorter ones for elevation zeroing. Also, whereas older Hi-Powers had the safety only on the frame's left side, this new pistol has an ambidextrous safety. As with vintage Hi-Powers, magazine capacity is 13 rounds for most of the world, but 10-round magazines are available for the politically correct states in America.

Whenever possible, I consider it beneficial to an article such as this to include a second gun, one differing significantly from the first in barrel length. The perfect fit is the above-mentioned Artillery Luger with an 8-inch barrel. Since I do have the shoulder stock for it, an interesting exercise was to also fire it for groups when set up as a carbine along with firing it simply hand-held over sandbags. I could tell no benefit, but here is a thought. Only the wartime Germans would think that adding 4.0 inches of barrel to their Luger P08s would make them viable shooters to 800 meters. Standard issue Lugers with 4-inch barrels were sighted for 50 meters, but the Artillery version has a tangent sight graduated to 800 meters.

In developing 9mm ball handloads, four types of bullets were chosen for variation: home cast, commercially cast, 115-grain FMJs and 125-grain FMJs. Keeping in mind that these handloads were going to feed as many as nine pistols, plus a couple of subguns, I was also thinking "frugality." The least expensive jacketed bullets I found were on an Internet auction site, bulk packaged with brand names such as Montana Gold and Zero Bullet Company. Their weights were 115 and 125 grains, respectively, and, of course, were FMJs in design.



As this photo shows, Mike truly enjoys shooting 9mms from his military collection.

9mm Luger Ball

Three 9mms for which Mike prepares ball-type handloads are: (1) a British STEN Mk II "machine carbine," (2) a John Inglis Hi-Power and (3) another John Inglis Hi-Power equipped with a shoulder stock.

The 125-grain Zero bullets were labeled ".38 Super." Originally .38 Super factory loads were nominally loaded with .356-inch bullets. Try finding that diameter as handloading components; all are .355 inch, as were these 125-grain bullets. Of course, so were the Montana Gold 115-grain FMJs.

That brings us to cast bullets, and here is one other 9mm fact of which I am sure.

Just as Luger pistols are finicky about their 9mm ammunition, all pistols chambered for 9mm Luger can be problematic with cast bullets. In my experience, bullet diameter is the major factor. Standard jacketed bullet diameter for 9mm is .355 inch, yet every 9mm, .355-inch cast bullet I have fired has tumbled. This has been the case in brand-new pistols, such as the Browning Hi-Power used here or those made during wartime duress, such as my 1943 vintage German P38.

Moving up to .356 inch for cast bullets gains point-on consistency for many 9mm pistols, but if a bullet drops from the mould large enough, sizing it .357 inch is even better *if the pistol in question will chamber bullets that large*. Ones with military spec chambers do, in my experience. Adding a gas-check design and using a relatively slow burning powder might even net the shooter sterling results, but gas checks violate my frugality standard by adding several pennies per shot plus the time it takes to attach them during the sizing/lubing operation. I do like gas-check 9mm bullets, such as the RCBS 9-124-RN, which I believe is now discontinued. My mould of that number drops a 124-grain roundnose, gas-check design large enough for sizing to .357 inch. It can be an excellent performer. I used them often in the past when owning only one 9mm Parabellum pistol.

The two cast bullets used in this project were Lyman's 356242 and Oregon Trail's 124-grain RN sized .356 inch. The roundnose Lyman design

These German-issue 9mms include: (1) a P38, (2) an FN Hi-Power, (3) a Luger P08 and (4) an MP40 "machine pistol."

Loads tested include: (1) a 9mm Finnish military surplus load, and handloads with (2) a Montana Gold 115-grain FMJ, (3) a Lyman 356242 cast bullet (120 grains), (4) a Oregon Trail 124-grain cast bullet and (5) a Zero Bullet Co. 125-grain FMJ.

Mike warns that handloaders must not get adventurous with 9mm Parabellum. At left is a case that was dangerously expanded; at right the case wall is blown out.

comes in two weights, 90 and 120 grains, differing by having one or two grease grooves. Used here was the heavier version, which cast of my Linotype alloy weighs right at the advertised weight. When poured of that alloy, their diameter just touches .357 inch as dropped from the mould, the same diameter of the die they were lubed and sized in.

Above I mentioned that coupling certain cast bullets with a relatively slow burning powder sometimes nets good results in a 9mm. Something I've noticed in this project and likewise in the past is poor results with 9mm cast bullets when propelled with the fastest of the powders commonly recommended for this small-capacity cartridge. By poor results, I mean tumbling or obviously tipping bullets. Then when powder type is switched to slower Unique, the tipping/tumbling goes away, and sometimes even surprising accuracy occurs.

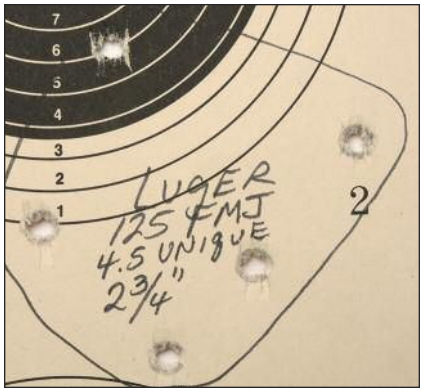
So the powders coupled with the four above bullets were chosen, ranging from Bullseye to Unique in burning rate. Some preliminary shooting indicated that fairly heavy charges from each propellant were necessary to ensure positive functioning from the Artillery Luger. Its action is rather stiff, and some lighter loads that cycled perfectly through the Browning Hi-Power did not kick the Luger's toggle mechanism hard enough to completely eject the empty case. All the loads shown in the table fed and functioned fine from both handguns.

At this point a necessary caution must be given. All loads in the accompanying table functioned fine in my two handguns, along with the other seven I own and the subguns. However, they could be overmaximum when fired in pistols of more modern manufacture or with tighter chambers. Tighter chambers could cause blown-out case walls with hot loads. Such a thing happened to me in my more adventurous past.

Also, saying that all the loads listed fed and functioned fine is not the same as saying all are recommended loads. The Lyman 120-

9mm Luger Ball

grain roundnose was poor in both pistols. With Bullseye and Titegroup, the Luger spread them so wide that not all even hit generously sized targets at 25 yards. Those that did left oblong bullet holes, indicating tumbling. They did hit point-on with W-231 and Unique but still printed patterns instead of groups. Overall performance with the Lyman bullet was not so bad from the Browning but far from good. The only load that was acceptable in terms of group size was with 4.5 grains of W-231. Interestingly, that combination's velocity was the lowest of all the Lyman bullet loads in the



Mike's Artillery Luger was not overly accurate. This group was one of the better ones using 9mm ball-type handloads.

Browning at 1,158 fps. Such could be a hint as to the poor performance – too much velocity and/or pressure for a plain-base, lead alloy bullet.

Oregon Trail's 124-grain roundnose cast bullet gave marginally

9mm Parabellum Ball-Type Handloads

bullet (*grains*)	powder	charge (*grains*)	Luger P08 8-inch barrel velocity (*fps*)	Luger P08 8-inch barrel variation (*fps*)	Browning 4.63-inch barrel velocity (*fps*)	Browning 4.63-inch barrel variation (*fps*)
115 Montana Gold FMJ	Bullseye	4.4	1,297	27	1,196	16
	W-231	4.4	1,218	34	1,153	76
	Titegroup	4.0	1,284	57	1,211	27
	Zip	4.5	1,256	27	1,181	16
	Unique	4.5	1,186	70	1,120	35
120 Lyman 356242 cast RN	Bullseye	4.4	1,332	46	1,236	21
	W-231	4.5	1,241	28	1,158	27
	Titegroup	4.2	1,354	30	1,258	51
	Zip	4.5	1,320	42	1,225	27
	Unique	4.5	1,304	23	1,219	17
124 Oregon Trail cast RN	Bullseye	4.4	1,316	9	1,201	22
	W-231	4.4	1,262	44	1,201	22
	Titegroup	4.0	1,309	23	1,234	42
	Zip	4.5	1,297	18	1,213	27
	Unique	4.5	1,230	18	1,138	50
125 Zero Bullet Company FMJ	Bullseye	4.4	1,276	20	1,189	30
	W-231	4.4	1,200	35	1,132	50
	Titegroup	4.0	1,226	33	1,177	22
	Zip	4.5	1,224	45	1,175	22
	Unique	4.5	1,184	63	1,112	43
factory loads:						
115 Federal FMJ			1,305	47	1,229	30
115 HPR FMJ			1,259	24	1,150	59
115 Black Hills FMJ			1,366	22	1,275	33
115 Winchester FMJ			1,296	101	1,199	46
115 Finnish military surplus			1,335	41	1,225	26

Notes: Chronograph figures are for five rounds taken with the start screen at approximately 6 feet. All loads used Winchester Small Pistol primers. Cases were mixed brands of commercial brass and not sorted by maker. All bullets were taper crimped as a separate step in the handloading process. Bullets cast by Mike were poured of Linotype alloy, sized .357 inch and lubed with SPG.

Be Alert – Publisher cannot accept responsibility for errors in published load data.

better results without the tipping problem. It was not the optimum bullet with any powder but was at least usable as long as pinpoint accuracy was not required.

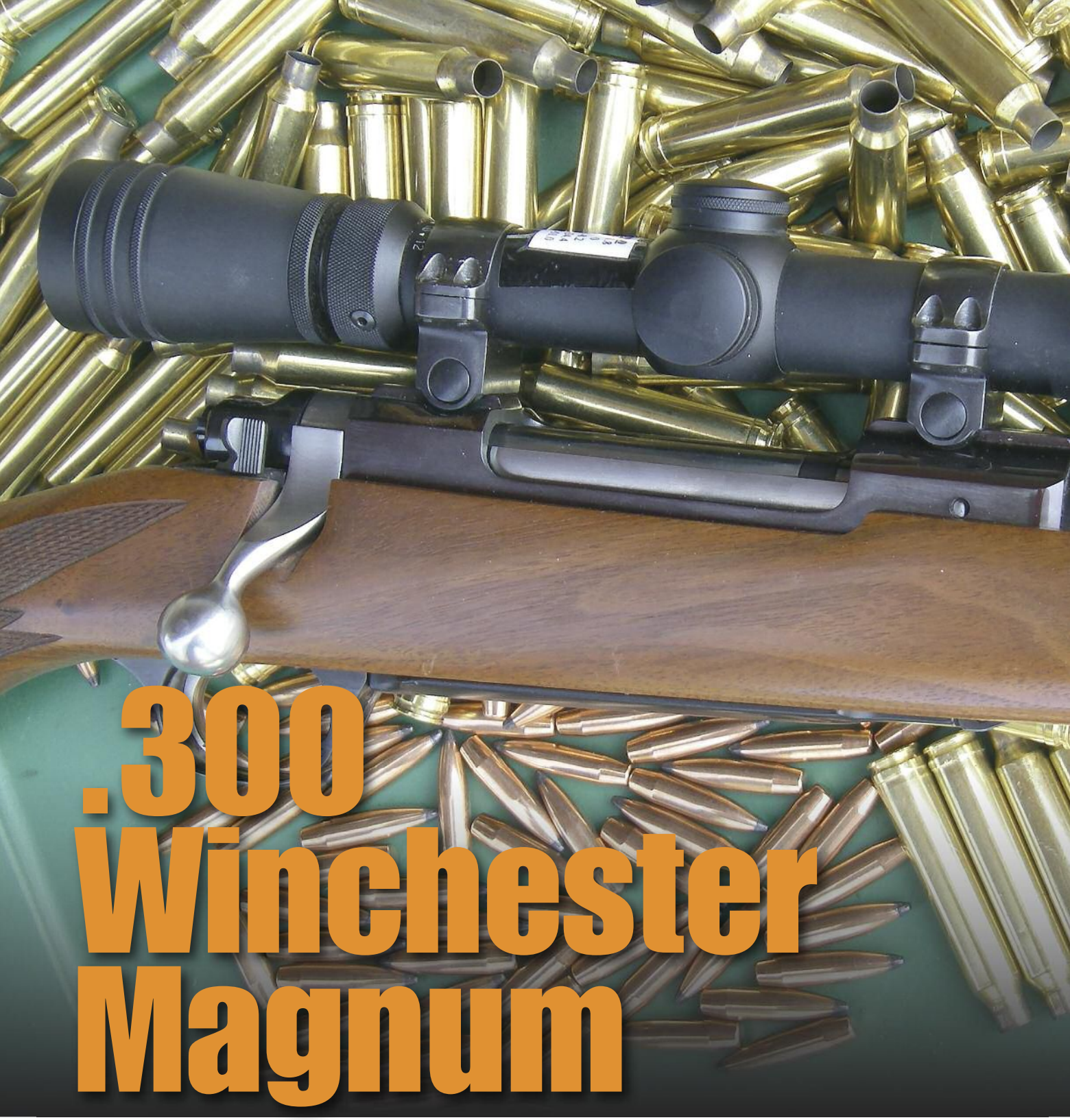
I must comment here that overall the level of precision delivered by the long-barreled Luger was disappointing. I expected it to rival an M1 Carbine or a Winchester pistol cartridge saddle ring carbine. It did not. At 25 yards the very best groups were in the 3-inch range, give or take a bit. The Browning sometimes grouped five rounds into 2.0 inches or so. While comparing the two handguns, it is worthy of note that the extra 3.37 inches of barrel on the Luger gave about 80 to 110 fps more velocity.

Another factor worthy of note is that velocity variations were mostly low in each five-shot string – loads varying no more than a couple of dozen feet per second were common. What makes that noteworthy is that no effort was made to sort cases by headstamp. In fact, a friend gave me a large box of 9mm cases containing just about every sort of commercially made 9mm brass possible. A glance at the table shows that the velocity variations given by the handloads with mixed headstamp brass are no worse on the average than velocity variations given by factory loads that, of course, were all the same per brand.

As much as an avid bullet caster such as I hate to admit it, most of my 9mm Parabellum ball-type handloads in the future will carry FMJ bullets. Individual specimens of my 9mms do well with cast bullets, but when loading for all of them across the board, it will be better served scouring the Internet for bargains on bulk-packaged jacketed roundnoses.

A Browning Hi-Power shot tighter groups than the long-barreled Luger.

Bullets from Lyman mould 356242 tended to tumble, as this bullet hole shows, even when sized to .357 inch.



.300 Winchester Magnum

Brian Pearce

In 1956 Winchester announced the .458 Winchester Magnum followed by the .264 and .338 Winchester Magnums in 1958. Each was based on the belted .300/.375 H&H Magnum case but was blown out and shortened, resulting in an overall cartridge length of 3.340 inches, the same as the .30-06. These were the original "short magnum" cartridges, as the H&H rounds required a longer action to house their 3.600-inch overall lengths.

A Ruger M77 MKII topped with a Redfield Revolution 4-12x scope was used to develop handload data.

Top Hunting and Target Handloads

There were rumors that a new .30-caliber magnum would soon follow, and most speculated that the .264/.338 Winchester case dimensions, including shoulder position, would be used but necked to accept .308-inch bullets. In anticipation, the wildcat .30-338 cartridge was soon developed, which became popular among hunters and long-range competitors. Around 1960 Norma introduced the .308 Norma Magnum that shared similar dimensions.

It wasn't until 1963, however, that Winchester finally announced the .300 Winchester Magnum in the pre-'64 Model 70 Alaskan rifle. It was based on the same belted case, but the shoulder position was moved forward to increase powder capacity and velocity, which resulted in a shorter neck. Original factory load ballistics advertised a 150-grain bullet at 3,400 fps, a 180 grain at 3,070 fps and a 220 grain at 2,720 fps. It became an overnight success, and in spite of many competing .30-caliber magnum cartridges, both old and new, the .300 Winchester Magnum is perhaps the most popular .30-caliber magnum cartridge in history.

The vast majority of .300 Winchesters are sold to hunters, with virtually every major manufacturer offering rifles. The cartridge offers versatility that allows it to easily take game in open country, where long shots are common, but it's also suitable for game such as elk, moose and even the great bears of the North – with premium hunting bullets. It is popular with Africa-bound hunters in pursuit of plains game. It has found favor with long-range target shooters, law enforcement and even our military, where it is used for sniping and long-range target work.

With nearly four decades of personal experience with the .300 Winchester Magnum, I can conclude that

Reference factory loads from Black Hills, Federal, Hornady and Remington were checked for velocity.

.300 Winchester Magnum

The .300 Winchester Magnum (left) has the same maximum overall cartridge length as the .30-06 (middle), which is listed at 3.340 inches, but the .300 is based on the .375 (right) and .300 H&H Magnum case.

it is a great hunting and field cartridge. It has accounted for many head of big game, including pronghorn at long distances, mule deer in sagebrush country, elk in the rugged mountains of the Continental Divide and several black bears that were anchored with authority. It has also taken many coyotes that stopped to look back at distances they thought were completely safe. When kept within normal limits and stoked with correct bullets, I have confidence in it as a reliable game cartridge. It is certainly a contender as one of the most versatile and useful cartridges for hunting all North American species under a variety of conditions and terrain.

There has been much speculation as to why Winchester moved the shoulder forward when designing this cartridge. Regardless of the reason, it resulted in greater case capacity and velocity than that of the wildcat .30-338 or the .308 Norma cartridges. This design feature resulted in a comparatively short neck that is around .264 inch long, making it shorter than its .308 caliber, resulting in some criticism. Many cartridge designers prefer the neck to be at least as long as the caliber, which theoretically offers more consistent bullet pull, better bullet alignment with the bore, etc. In essence, its short neck has been accused of decreasing accuracy, but the .300 Winchester Magnum has been accurate in the dozens of sporting rifles I have tested, developed handloads for and hunted with. It has also racked up many long-range match wins at 1,000 yards, which is a real test of a cartridge's accuracy, and the fact that the military uses it for long-range work has largely dispelled this criticism.

It is true that with the short neck, longer bullets (those typically above 200 grains) that are seated to industry overall lengths will extend into the case body and reduce powder capacity, but that is true with any bottleneck rifle cartridge. In other words, regarding cartridges with longer necks, bullets may not protrude into the case body, but they still use powder capacity by seating deeper into the neck.

As can be seen in the accompanying handloading data, bullets

Table I

.300 Winchester Magnum Factory Load Velocities

load (*grains*)	advertised velocity (*fps*)	actual velocity (*fps*)
150 Remington Core-Lokt	3,290	3,266
165 Hornady BTSP	3,100	3,112
180 Black Hills Triple-Shock X	2,950	2,939
180 Federal Premium Partition	2,960	2,955
180 Hornady Heavy Magnum	3,120	3,103
180 Remington Core-Lokt PSP	2,960	2,922
190 Black Hills BTHP Match	2,950	2,959

Notes: A 24-inch barreled Ruger M77 MKII (stainless) .300 Winchester Magnum was used to test-fire these loads.

Maximum case length is 2.620 inches.

Current .30-caliber magnum cartridges include: (1) .300 Winchester, (2) .300 Remington SAUM, (3) .300 WSM, (4) .300 H&H, (5) .308 Norma, (6) .300 Weatherby, (7) .300 RUM and (8) .30-378 Weatherby.

Table II

.300 Winchester Magnum Handloading Data

bullet (*grains*)	powder	charge (*grains*)	overall loaded length (*inches*)	velocity (*fps*)
110 Hornady V-MAX	IMR-4007 SSC	72.0	3.300	3,205
		74.0		3,316
		76.0		3,461
		78.0		3,554
		79.5		3,670
	H-4350	65.0		2,805
		67.0		2,913
		69.0		3,018
		71.0		3,122
		73.0		3,198
		75.0		3,286
		77.0		3,394
		79.0		3,489
		81.0		3,575
130 Hornady Spire Point	Power Pro 2000MR	68.0	3.290	3,261
		70.0		3,374
		72.0		3,456
		74.0		3,569
		75.5		3,644
	IMR-4007 SSC	65.0		2,998
		67.0		3,077
		69.0		3,180
		71.0		3,285
		73.0		3,379
		75.0		3,455
150 Nosler Ballistic Tip	W-780 Supreme	75.0	3.340	3,050
		77.0		3,125
		79.0		3,188
		81.0		3,284
		81.5		3,305
150 Speer Hot-Cor SP	RL-17	70.0	3.335	3,133
		72.0		3,222
		74.0		3,307
	RL-22	69.0		2,777
		71.0		2,849
		73.0		2,933
		75.0		3,040
		77.0		3,129
		79.0		3,207
	MagPro	80.0		2,811
		82.0		2,920
		84.0		3,061
		86.0		3,199
		88.0		3,304
		89.0		3,341
150 Barnes Triple-Shock X	RL-17	68.0	3.290	3,077
		70.0		3,155
		72.0		3,288
		74.0		3,377
	W-780 Supreme	75.0		3,124
		77.0		3,177
		79.0		3,262
		81.0		3,310
		81.5		3,348
165 Hornady SST	IMR-4350	58.0	3.330	2,455
		60.0		2,530
		62.0		2,622
		64.0		2,718
		66.0		2,811

(Continued on page 46)

.300 Winchester Magnum

ranging in weight from 110 to 240 grains were used, and there were no problems associated with the heavier versions that protruded below the case neck and into the case body. The fact remains that the .300 Winchester Magnum offers a ballistic advantage over the .30-338 or .308 Norma Magnum and with correct loads certainly approaches .300 Weatherby Magnum performance.

Velocities of today's factory loads have been reduced from early advertised figures. Referencing current traditional lead core jacketed bullets from Federal, Remington and Winchester, 150-grain bullets are generally listed at around 3,290 fps, 180s at 2,960 fps and 200 grainers at 2,700 fps (with no listings for the traditional 220-grain roundnose). However, with new bullet technology and advancements in powders, some companies have been able to boost those velocities by 50 to 160 fps while staying within pressure guidelines. In checking the velocities of several factory loads, as can be seen in Table I, bullet speeds are generally close to advertised figures.

I have extensive experience with the .300 Winchester Magnum and have used it in a variety of rifles from Winchester, Ruger, Remington, Browning, Husqvarna, Sako, P.O. Ackley, Interarms, Kimber, Kimber of Oregon, Colt, Weatherby and others. Notable favorites include a Winchester pre-'64 Model 70 Alaskan (25-inch barrel) and a Browning FN Mauser High Power that can each stack five bullets from handloaded ammunition into groups that can be covered with a dime. Each of the above rifles produced in many different countries have also proven accurate.

A Ruger M77 MKII with blue finish was chosen to develop all the

Table II

(Continued from page 45)

.300 Winchester Magnum Handloading Data

bullet (*grains*)	powder	charge (*grains*)	overall loaded length (*inches*)	velocity (*fps*)
165 Hornady SST	IMR-4350	68.0	3.330	2,912
		70.0		2,998
		72.0		3,094
		73.5		3,166
	A-4350	60.0		2,555
		62.0		2,598
		64.0		2,667
		66.0		2,744
		68.0		2,805
		70.0		2,866
		72.0		2,968
		74.0		3,133
165 Nosler Partition	RL-17	62.0	3.335	2,713
		64.0		2,792
		66.0		2,899
		68.0		3,009
		70.0		3,100
		72.0		3,205
		73.0		3,256
	RL-22	67.0		2,670
		69.0		2,761
		71.0		2,841
		73.0		2,943
		75.0		3,030
		77.0		3,127
		79.0		3,200
		80.0		3,256
165 Speer Grand Slam	W-780 Supreme	68.0	3.340	2,671
		70.0		2,777
		72.0		2,870
		74.0		2,956
		76.0		3,059
		78.0		3,154
		79.0		3,195
	IMR-7828 SSC	68.0		2,513
		70.0		2,615
		72.0		2,733
		74.0		2,865
		76.0		2,948
		77.0		3,005
		78.0		3,051
		79.0		3,108
		79.5		3,131
168 Barnes Triple-Shock X	A-4350	64.0	3.290	2,763
		66.0		2,828
		68.0		2,899
		70.0		2,982
		72.0		3,066
		74.0		3,130
	W-780 Supreme	69.0		2,899
		71.0		2,944
		73.0		3,004
		75.0		3,095
		77.0		3,166
		79.0		3,212
	MagPro	75.0		2,841
		77.0		2,888
		79.0		2,970

(Continued on page 47)

Table II

(Continued from page 46)

.300 Winchester Magnum Handloading Data

bullet (*grains*)	powder	charge (*grains*)	overall loaded length (*inches*)	velocity (*fps*)
168 Barnes Triple-Shock X	MagPro	81.0	3.290	3,056
		83.0		3,126
		85.0		3,188
168 Sierra MatchKing HPBT	IMR-4350	66.0	3.340	2,785
		68.0		2,889
		70.0		3,020
		72.0		3,145
		74.0		3,248
	RL-17	62.0		2,710
		64.0		2,799
		66.0		2,910
		68.0		3,009
		70.0		3,101
		72.0		3,188
		73.0		3,237
178 Hornady A-MAX	Hybrid 100V	62.0	3.335	2,656
		64.0		2,748
		66.0		2,838
		68.0		2,935
		70.0		3,018
	Power Pro 4000-MR	66.0		2,795
		68.0		2,860
		70.0		2,901
		72.0		3,001
		74.0		3,088
		74.5		3,108
	Norma MRP	64.0		2,555
		66.0		2,662
		68.0		2,744
		70.0		2,811
		72.0		2,902
		74.0		3,003
		76.0		3,075
180 Swift A-Frame	RL-22	64.0	3.335	2,532
		66.0		2,641
		68.0		2,718
		70.0		2,784
		72.0		2,888
		74.0		2,985
		76.0		3,048
180 Hornady SST	VV-N560	61.0	3.335	2,431
		63.0		2,499
		65.0		2,570
		67.0		2,635
		69.0		2,704
		71.0		2,769
		73.0		2,863
		75.0		2,937
	MagPro	77.0		2,877
		79.0		2,931
		81.0		3,000
		83.0		3,086
		85.0		3,143
		85.5*		3,188
180 Sierra spitzer	H-4831	62.0	3.335	2,450
		64.0		2,542
		66.0		2,611
		68.0		2,726

(Continued on page 48)

handloads tested for this article, while a Ruger M77 MKII Stainless rifle that produced ballistically identical velocities was used to check the velocities of factory loads. My reasons for choosing the Ruger are simple. There are more accurate rifles, but since Ruger began making its own hammer-forged barrels back in the 1980s, their accuracy is generally good, especially with handloads. The primary reason is that when developing extensive handload data, there are thousands of rounds fired, which is far more than most rifles

.300 Winchester Magnum

get fired in their lifetime, and occasionally pressures can exceed maximum, or an odd powder and bullet combination can produce erratic pressure curves (all of which has been eliminated from the table). I have had such loads damage the extractor and even the ejectors of less robust actions, but the Ruger action is tough as nails and nearly bulletproof. Extractors won't break from a load that is excessive, and it will virtually always extract the case, and neither will the blade ejector become damaged. The action, especially the MKII, may best be described as "Ol' Reliable," and in the event of a ruptured primer or case, both of which I have had happen, the gas venting system gets an A-rating for shooter protection.

While there are different ways to measure water capacity, I prefer to fill the case level with the mouth of a fully sized case. In testing various cases from Federal, Hornady, Norma, NoslerCustom, Remington and Winchester, there was almost a 3-grain capacity variance, which even varied similarly from cases of different vintages from the same manufacturer. I managed to purchase a large quantity of new Winchester cases that are of one lot number, and they were used exclusively throughout this testing. Water capacity was 92.6 grains.

Practically all rifle manufacturers use a one-in-10-inch barrel twist for the .300 Winchester Magnum – with Husqvarna using a one-in-12-inch twist. This twist generally stabilizes bullets ranging from 110 to 220 grains, including practically all hunting and most match bullets. However, Sierra offers a 240-grain HPBT Match bullet that is best stabilized with a one-in-9-inch twist, or possibly faster.

(Continued from page 47)

Table II
.300 Winchester Magnum Handloading Data

bullet (*grains*)	powder	charge (*grains*)	overall loaded length (*inches*)	velocity (*fps*)
180 Sierra spitzer	H-4831	70.0	3.335	2,832
		72.0		2,919
		74.0**		2,976
180 Nosler AccuBond	IMR-7828 SSC	65.0	3.340	2,415
		67.0		2,507
		69.0		2,615
		71.0		2,727
		73.0		2,820
		75.0		2,911
180 Nosler Partition	RL-25	67.0	3.340	2,488
		69.0		2,579
		71.0		2,671
		73.0		2,756
		75.0		2,844
		77.0		2,909
		77.8		2,961
	Power Pro 4000-MR	65.0		2,731
		67.0		2,800
		69.0		2,895
		71.0		2,971
		73.0		3,053
		75.0		3,122
180 Speer/Trophy Bonded	RL-19	65.0	3.335	2,713
		67.0		2,754
		69.0		2,819
		71.0		2,866
		72.0		2,898
185 Berger Long Range BT	IMR-7828 SSC	70.0	3.338	2,685
		72.0		2,751
		74.0		2,888
		75.5		2,960
	Norma MRP	68.0		2,765
		70.0		2,810
		72.0		2,884
		72.5		2,936
190 Sierra Match BTSP	IMR-4831	66.0	3.338	2,733
		68.0		2,818
		70.0		2,930
		72.0		3,018
	VV-N165	66.0		2,470
		68.0		2,566
		70.0		2,680
		72.0		2,794
		73.0		2,866
190 Hornady BTSP	Magnum	72.0	3.340	2,505
		74.0		2,616
		76.0		2,701
		78.0		2,758
		80.0		2,830
		82.0		2,920
		84.0		2,977
		86.0*		3,045
	H-1000	72.0		2,605
		74.0		2,688
		76.0		2,766
		78.0		2,854
195 Hornady BTHP	VV-N560	64.0	3.340	2,444
		66.0		2,555

(Continued on page 49)

(Continued from page 48)

Table II

.300 Winchester Magnum Handloading Data

bullet (*grains*)	powder	charge (*grains*)	overall loaded length (*inches*)	velocity (*fps*)
195 Hornady BTHP	VV-N560	68.0	3.340	2,630
		70.0		2,735
		72.0		2,841
		74.0		2,895
		75.0		2,946
	W-780 Supreme	67.0		2,633
		69.0		2,713
		71.0		2,808
		73.0		2,891
200 Barnes TSX	RL-22	64.0	3.290	2,556
		66.0		2,600
		68.0		2,671
		70.0		2,733
		72.0		2,809
	Hunter	60.0		2,592
		62.0		2,635
		64.0		2,720
		66.0		2,799
		68.0		2,860
	MagPro	70.0		2,636
		72.0		2,671
		74.0		2,760
		76.0		2,825
		78.0		2,889
		80.0		2,939
200 Sierra SBT	IMR-4831	64.0	3.335	2,580
		66.0		2,654
		68.0		2,777
		70.0		2,865
	RL-22	64.0		2,489
		66.0		2,561
		68.0		2,669
		70.0		2,760
		72.0		2,833
208 Hornady A-MAX	H-4350	55.0	3.340	2,311
		57.0		2,371
		59.0		2,453
		61.0		2,531
		63.0		2,620
		65.0		2,694
		67.0		2,759
	Hunter	60.0		2,580
		62.0		2,633
		64.0		2,698
		66.0		2,766
		68.0		2,840
		70.0		2,888
220 Sierra roundnose	RL-17	57.0	3.300	2,415
		59.0		2,470
		61.0		2,550
		63.0		2,610
		65.0		2,665
	Norma MRP	64.0		2,450
		66.0		2,511
		68.0		2,598
		70.0		2,660
		72.0		2,725
	W-780 Supreme	63.0		2,405

(Continued on page 50)

The selection of suitable .30-caliber bullets for handloading the .300 Winchester Magnum is far too vast to include them all, or even discuss in detail the performance of those included here. Regardless, this huge bullet selection adds to the cartridge's outstanding versatility. Handloaders can choose a bullet and tailor loads to best accomplish a specific task. For example, hunters pursuing game such as moose, Alaskan brown bear, African plains game, etc., will do well to consider tough premium bullets designed for deep penetration, such as the Barnes TSX, Hornady GMX, Nosler Partition, Swift A-Frame, Tro-

.300 Winchester Magnum

(Continued from page 49)

Table II

.300 Winchester Magnum Handloading Data

bullet (*grains*)	powder	charge (*grains*)	overall loaded length (*inches*)	velocity (*fps*)
220 Sierra roundnose	W-780 Supreme	65.0	3.300	2,460
		67.0		2,534
		69.0		2,611
		71.0		2,692
		73.0		2,753
		73.5		2,778
225 Hornady Match BTHP	Hybrid 100V	59.0	3.340	2,444
		61.0		2,503
		63.0		2,588
		65.0		2,655
	Hunter	60.0		2,522
		62.0		2,578
		64.0		2,640
		66.0		2,729
		68.0		2,782
		68.5		2,805
	Norma MRP	63.0		2,455
		65.0		2,518
		67.0		2,611
		69.0		2,680
		71.0		2,756
		72.7		2,815
240 Sierra HPBT	IMR-4831	60.0	3.420***	2,415
		62.0		2,490
		64.0		2,588
		66.0		2,670
		67.7		2,749
	H-1000	64.0		2,385
		66.0		2,438
		68.0		2,516
		70.0		2,570
		72.0		2,639
		74.0		2,699
		75.5		2,743
	MagPro	65.0		2,351
		67.0		2,441
		69.0		2,521
		71.0		2,581
		73.0		2,688
		75.5		2,748

* maximum
** maximum, compressed
*** OAL exceeds industry specs; used in single-shot mode.

Notes: A Ruger M77 MKII (blued) with a 24-inch barrel (one-in-10-inch twist) was used to test-fire all loads. Winchester cases and Federal GM215 Match Large Rifle Magnum primers were used throughout. Bullet diameter: .308 inch; maximum overall loaded length: 3.340 inches; maximum case length: 2.620 inches; trim-to length: 2.610 inches.

Be Alert – Publisher cannot accept responsibility for errors in published load data.

phy Bonded Bear Claw, etc. For smaller species, such as deer and similar-sized animals, less robust and faster bullets with controlled expansion can be excellent choices. Examples include the Hornady InterBond and SST, Nosler Ballistic Tip and AccuBond, Sierra GameKing, Swift Scirocco and similar bullets.

Throat length varies considerably among rifles chambered for .300 Winchester Magnum. Many match competitors seat bullets to just contact the leade, but this practice

should not be employed with hunting ammunition, as I have seen bullets pulled from the case that stick in the barrel when a round is extracted from the chamber. Bullets should be seated off the leade by at least .010 inch or more. It should be noted that as a result of ogive profile variances, some bullets will contact the leade if they are seated to the industry maximum cartridge length of 3.340 inches, so carefully checking a given bullet is important to assemble reliable hunting ammunition. It will be productive to experiment with bullet seating depth to find that "sweet" accuracy spot for a given rifle, which is not always as close to the rifling as is possible. As a tip, the Barnes TSX will almost always produce its best accuracy when seated around .050 to .090 inch off the leade, and I have seen other bullets produce best accuracy with similar seating depths.

Generally speaking, a large rifle magnum primer should be used, with the Federal Gold Medal Match GM215M used herein. The .300 Winchester Magnum contains enough powder that in order to achieve reliable ignition under all temperatures, humidity changes, etc., a magnum primer is generally advised for handloaders. I have experimented with standard primers too. Interestingly, when using the Nosler 180-grain AccuBond ignited with the Federal GM210M primer and 72.5 grains of Winchester 780 Supreme (Ball) powder, it reached 2,931 fps and had an extreme spread of 16 fps, while the same load primed with a Federal GM215M primer reached 2,904 fps and had an extreme spread of 53 fps. Switching to IMR-4831 (extruded) powder, the results were reversed. For example, 74.0 grains recorded 3,054 fps with the GM210M primer, while the GM215M reached 3,090 fps. The differences in velocity spreads were insignificant at 18 and 21 fps, respectively. (The above loads were fired in a custom Remington Model 700 with a 24-inch Douglas barrel.)

Match shooters who compete during warmer temperatures may recognize lower extreme spreads and increased accuracy with standard primers. It should also be noted that some ammunition companies offer .300 Winchester Magnum loads with large rifle standard primers, but they use sophisticated lab equipment to thoroughly test reliability, ignition and performance with a particular powder and bullet combination, something the average handloader does not have access to. For these reasons it is suggested to stick with magnum primers for reliable ignition under temperature swings that might include African heat or late season Rocky Mountain subzero temperatures.

The list of suitable powders for the .300 Winchester Magnum seems nearly endless and includes extruded and spherical. Extruded powders that produced top-notch performance (accuracy and ve-

(Continued on page 67)

Big Punch for the .45-70

John Haviland

This article is in response to messages received after my article ".357 Magnum Heavy Bullets" was published in the February 2014 (No. 288) *Handloader* about my son carrying his .357 Magnum revolver for protection against grizzly bears. Not once did my article state the .357 was the best choice for protection against bears. It is marginal for bear protection, but still a lot better than nothing in hand. However, by the nasty letters received, many folks thought I put my son in great peril by permitting him to carry his .357.

The following is a discussion of a variety of loads for a rifle and cartridge that are serious bear protection. The Marlin 1895G Guide Gun is quick to handle and when chambered in the .45-70 provides serious muscle. My Guide Gun is paired with a Swarovski Z6(i) 1-6x24 scope that provides an extremely wide view for quick shots when a threat is suddenly up close and unpleasant.

To test a variety of .45-70 loads, I handloaded and shot bullets from relatively light with a hollow nose to bonded core bullets and heavy jacketed solid and

cast bullets. Remington Express loads with 300-grain hollowpoints and 405-grain softpoint bullets were also fired.

Cutting Edge 295-grain Lever+Raptor bullets are turned from brass and with deep hollowpoints are long for their weight. The Lever+Raptor bullet is 1.042 inches long compared to .967 inch for the Speer .45-caliber, 400-grain softpoint flatnose bullet. Cutting Edge does not provide handloading data, so I loaded the bullets with H-4198 a couple of grains below the maximum listed in the Sierra reloading manual for its 300-grain bullets. The powder was solidly compressed with the bullets seated deeply enough for case mouths to crimp in the bullets' crimping grooves. The bullet's nose is scored so six petals peel back and break off as the bullet penetrates, while the solid shank continues to punch forward.

One Barnes bullet is designed to expand while the other is designed to drive deeply. Barnes 300-grain Triple-Shock flatnose bullets (TSX FN) are copper with a hollow nose that peels back into six petals. In contrast, the 400-grain Buster is a solid with a lead core sealed in a heavy copper jacket. No specific handloading data is available for the Buster, but the Barnes folks said it was safe to use .45-70 data intended for other lead-core bullets of the same weight.

The Alaska Bullet Works Kodiak bullet has a gilding metal jacket fusion-bonded to a lead alloy core. The front of the jacket is thin to initiate expansion and thick toward the rear to check expansion. For a powder charge, 58.0 grains of H-335 was used, which is 2.0 grains below the maximum listed for the Hornady 350-grain roundnose bullet in *Hodgdon's 2015 Annual Manual*. The Kodiak's average velocity of 1,890 fps from the Guide Gun's 18.5-inch barrel is not all that much slower than the 2,094 fps Hodgdon lists for 60.0 grains of H-335, when considering Hodgdon recorded its velocity from a 24-inch barrel.

Belt Mountain 400-grain Big Game Punch bullets are turned from brass with a hollow base filled with lead. The solid has a flat nose nearly .40 inch in diameter. The bullet is relatively long for its weight and has two relief grooves of bore diameter. A request for load data went unanswered, so 50.0 grains of IMR-4166 was used, which is 1.0 grain above the minimum listed in *Hodgdon's Annual Manual* with Speer 400-grain bullets. That amount of powder was tightly compressed by the Punch bullet. The velocity of the Punch bullet fired from the Marlin's 18.5-inch barrel was slightly faster than Hodgdon recorded with its minimum load for the Speer bullet shot from a 24-inch barrel, so the load listed in the accompanying table should be considered the maximum for the Punch bullet.

Price is the only problem with these jacketed bullets. Barnes TSX bullets cost about $1 apiece, Barnes Busters and Kodiaks $1.25, Lever+Raptor bullets $1.65 and Punch bullets a whopping $2.50 per shot.

In comparison, bullets cast from an RCBS 45-405-FN mould cost about 10¢ and time spent at the lead furnace. RCBS 45-405-FN bullets have a fairly wide, flat nose to initiate expansion when cast of wheelweights. What's nice about these bullets is their expansion can be altered by casting them with different lead alloys. A soft lead alloy makes them ductile to keep them from fracturing as they expand. Cast with a harder lead alloy decreases their expansion and increases penetration, much like a solid. To increase upset of some of these bullets, I placed a strip of aluminum foil

A Second Look at "Bear" Loads

Facing page, the Marlin 1895G .45-70 rifle and Swarovski scope were fast handling with test loads. Right, these bullets were tested to determine if they would make good bear medicine: (1) Cutting Edge 295-grain Lever+Raptor, (2) Barnes 300 TSX FN, (3) Alaska Bullet Works 350 Kodiak, (4) Barnes 400 Buster, (5) Belt Mountain 400 Big Game Punch and (6) cast RCBS 45-405-FN.

Big Punch for the .45-70

between the mould halves extending about half way down the nose.

Bales of water-soaked, hardcover books placed at 25 yards were used to catch the various bullets fired from the Marlin .45-70.

Remington Express .45-70 cartridges are loaded on the mild side for safe use in all .45-70 rifles. Remington states a velocity of 1,810 fps for its 300-grain bullet and 1,440 fps for its 405-grain bullet. Those speeds are 300 to 400 fps slower from the Marlin's short barrel. The 300-grain bullet mashed itself flat, and its lead core separated from its jacket, penetrating 4 inches into the bundles. That seems like a shallow blow, but dense paper is not a bear. I fired one of these bullets into the sternum of a treed black bear, and the bear was dead

Above, four cast bullets were fired in eight seconds from the Marlin .45-70 to print this group at 25 yards. Shooting the correct bullet should settle any problems in bear country. Below, Remington Express .45-70 cartridges are loaded to low pressures for use in all .45-70 rifles.

During 25-yard penetration tests into hardcover books, the petals on Barnes 300-grain TSX FNs (1) expanded widely and tore a deep hole. Alaska Bullet Works 350-grain Kodiaks (2) expanded broadly and tore a gaping, deep hole. Barnes 400-grain Buster bullets (3) retained their original shape and penetrated well. Belt Mountain 400-grain Big Game Punch bullets (4) retained their shape, penetrating deeply. RCBS 45-405-FN cast bullets (5) expanded and penetrated, and this (6) is what is left from a 405-grain bullet loaded in a Remington Express .45-70 cartridge.

before the Guide Gun stopped recoiling. The bullet plowed through about 15 inches of the bear, broke its spine and came to rest under the hide. The recovered bullet was a picture-perfect mushroom.

The Remington 405-grain softpoints hit the bundles plodding along, yet the bullets folded back about half their lengths and ripped a big hole through the paper. Plain lead bullets of that weight with a muzzle velocity of 1,000 to 1,200 fps have been killing large game for well over a century.

Lightweight bullets, however, are the trend for the .45-70. Cutting Edge 295-grain Lever+Raptor bullets tore 2-inch wide holes the first 4 inches through the books. Sheared petals started to appear a few inches in along the bullet's path. The holes shrank to about an inch in width until the blunt shank of the bullets stopped after 14 inches.

Somewhere along its path, the nose petals of the Barnes 300-grain TSX FN expanded to nearly 1.50 inches wide. That must have occurred right after impact, because the bullets shredded a nasty hole from the start and kept that diameter hole nearly until they stopped. Other than shedding a couple of petals, the bullets remained whole.

Alaska Bullet Works Kodiak bullets are my choice for a bear stopper fired from the .45-70. Several times I have shot these bullets into wet paper, and each time they tore gaping holes 7 inches wide, penetrating 10 to 13 inches. The lead cores remained adhered to the jackets, and one recovered bullet had an expanded diameter slightly over an inch.

RCBS cast bullets were close behind the Kodiak in impressive damage. I could wiggle four fingers in the holes they blew in the first 5 inches of the paper. They stopped after plowing 11.5 inches and had lost a bit more than half their original weight. The same bullets, with a split nose, hacked even larger holes but did not penetrate nearly as deeply. Recovered bullets were pretty much a small ball of lead.

The Barnes Buster and Big Game Punch are solids. Other than rifling marks, the recovered bullets looked unfired. In the first 5 inches or so, both bullets punched fairly big holes in the books. The wide, flat nose of the Punch bullet seemed to smash larger holes, but the holes were still nothing like the craters caused by the expanding Kodiak bullets. After their initial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Big Punch for the .45-70

blow, the Barnes and Punch bullets drilled pencil-sized holes that kept going and going. No doubt the bullets would have driven through any bones that stood in their paths from beginning to end through a bear or an elk. It's questionable, however, if that extra penetration is all that much of a useful tradeoff for less initial expansion.

Bears can appear unexpectedly and allow little time to assess the situation and bring a gun into action. A couple of years ago, a grizzly attacked a man in a forest thicket in northwestern Montana. In the fight, the man's partner shot at the bear, but instead of hitting the bear, he accidentally shot and killed the man. So assessing whether or not to shoot is an important part of the equation. When the decision is made to shoot, get with the plan.

I practiced shooting the Guide Gun at 25 yards with a couple of stout .45-70 loads. The Swarovski scope set on 1x provided a very wide view, but the barrel, from the forearm forward, was visible in the scope and distracting. With the scope set on 3x, the barrel was hidden from sight and the view was still as wide as a garage door. On the first attempt, my shirt pocket was unbuttoned and the toe of the recoil pad hung up in my pocket. That misstep might have resulted in a thorough mauling. I buttoned the pocket and started again. The rifle has been shot quite a bit, and its action is slick. I picked up the rifle off the bench, worked the lever to chamber a cartridge and fired. I fired three more shots, and the four bullets landed in a group the size of the palm of my hand. All that took eight seconds. The RCBS 45-405-FN bullets fired with 53.5 grains of IMR-4064 caused the rifle to climb and twist in recoil, but it was fairly easy to quickly

.45-70 Handloads

bullet (*grains*)	powder	charge (*grains*)	overall loaded length (*inches*)	velocity (*fps*)	25-yard penetration (*inches*)
295 Cutting Edge Lever+Raptor	H-4198	52.0	2.500	2,146	14
300 Barnes TSX FN	A-1680	48.5	2.515	1,944	13.5
350 Alaska Bullet Works Kodiak	H-335	58.0	2.535	1,890	10 &13
400 Barnes Buster	X-Terminator	51.0	2.523	1,713	21 & 28
400 Belt Mountain Big Game Punch	IMR-4166	50.0	2.545	1,654	23
415 RCBS 45-405-FN split nose cast	IMR-4064	53.5	2.530	1,712	7
415 RCBS 45-405-FN cast	|	53.5	2.530	1,712	11.5
300 Remington Express Semi-Jacketed HP				1,440	4
405 Remington Express softpoint				1,004	6

Notes: All loads were assembled with Remington cases and Federal 215 primers. Velocities were recorded 10 feet in front of the muzzle of a Marlin 1895G with an 18.5-inch barrel.

Be Alert – Publisher cannot accept responsibility for errors in published load data.

When grizzly tracks are in the trail, it's good to have a plan. John killed this black bear with one shot from his .45-70.

pull the rifle back down and onto the target.

Recoil was tougher to handle when shooting 350-grain Kodiaks with a muzzle velocity of 1,890 fps. In fact, the loads had me a bit cowed, and I flinched somewhat on the trigger and sent three bullets 7.5 inches horizontally across the target. From picking up the rifle to firing the third shot took eight seconds.

Shooting the cast bullet, Kodiak, either of the two Barnes bullets or Big Game Punch bullet from a handy .45-70 like the Guide Gun will make a connecting shot a fatal one. However, practice and more practice are essential, because without constant preparation, whether it's a .357 Magnum revolver or a .45-70 rifle in your hands, it is just false security. ●

Three Faces of the .32-20 Winchester

John Barsness

The .32-20 Winchester Center Fire (WCF) was introduced in 1882 as a new chambering for the Winchester Model 1873 lever action. The original factory ammunition used 20 grains of black powder to start a 115-grain bullet at about 1,200 fps, which many hunters considered adequate not just for small game but deer. That may seem strange to twenty-first-century hunters, even those who now use .223 Remingtons for the same purpose, but well into the 1800s, many deer hunters used muzzleloaders with similar weight roundballs. A pure lead .44-caliber ball, for instance, weighs 128 grains. It really doesn't take much to kill a deer with a lung shot when 100 yards is a long shot.

Rifle, Revolver and Pistol Loads

Within a few years, Colt chambered the Single Action Army for the .32-20 WCF, partly for those people who wanted a rifle and revolver using the same cartridge, and soon other handgun manufacturers did too. In the 1890s smokeless powder took over, and

The three faces of the .32-20 WCF can almost be regarded as different cartridges due to variations in firearms. From top: a Colt Army Special, a Savage 23C and a T/C Contender.

eventually "high-velocity" .32-20 ammunition with jacketed bullets appeared – but so did many other .32-20 revolvers of widely varying quality.

A century ago shooters were apparently expected to know such stuff, and even if somebody blew up a cheap .32-20 WCF revolver with high-velocity rifle ammunition, he wasn't likely to get anywhere by dragging Winchester into court. Eventually all .32-20 ammunition was wimped down to black-powder pressure and velocity levels so it would be safe to fire in any rifle or handgun.

In *Sixguns by Keith*, Elmer Keith almost equates the wimping of the .32-20 WCF to the decline of American civilization. He started shooting the cartridge early, since one of his first Colt Single Action Army's was a .32-20, and stated, "I cannot fully underwrite the .32-20 cartridge as pistol fodder unless handloaded. . . ."

Keith claimed to handload 100- to 115-grain bullets to 1,500 fps in "heavy .45 frame guns" with Hercules 2400, though exactly how he knew this long before the advent of affordable home chronographs isn't mentioned. Over the years he killed three mule deer and a cow elk with .32-20 WCF revolvers, all taken as targets of opportunity while out in the woods doing something else, such as salmon fishing or horse-packing supplies for the U.S. Forest Service. Like a lot of westerners, he habitually wore a sixgun when outdoors (though Keith often wore one indoors as well).

For most of my shooting life, I never thought about the .32-20 WCF much one way or another, since its useful niche had apparently come and gone, but a while back Dave Scovill sent me a scoped 10-inch Thompson/Center Contender .32-20 barrel. It sat around in the safe with some other stuff until one day a Savage Model 23C bolt action in .32-20 WCF appeared at such a good price it couldn't be passed up.

For those not familiar with Savage 23s, they're yet another example of the old American tradition of building "affordable" but serviceable firearms. (Many of us have forgotten that, the reason some shooters see Ruger American Rifles as part of the decline of American civilization, when they're actually another example of our ability to make good stuff for everybody, not just more expensive stuff for fewer people.) Four models of the 23 were designated A through D, chambered for the .22 Long Rifle, .25-20 WCF, .32-20 WCF and .22 Hornet. One of the reasons 23s cost so little is the cuts for the bolt and other action parts were machined into the rear of the barrel, which may be one reason 23s often shot more accurately than more expensive rifles.

At some point this particular 23C had been drilled and tapped for Weaver bases, so I mounted an old brass-trimmed K4 Weaver – then phoned Dave Scovill, because now I had both a .32-20 WCF rifle and handgun, which seemed like a natural combination for a

Remington and Winchester factory .32-20 WCF loads use lead 100-grain bullets at a listed 1,210 fps. They chronographed very close to that in the Savage rifle, but neither company has been making any .32-20 ammunition lately.

Handloader article. Scovill pointed out that the T/C barrel had .308-inch grooves and a one-in-10-inch rifling twist, rather than the nominal .312-inch grooves and 1-20 twist standard on older .32-20s, since the purpose of the Contender barrel was target shooting with .30-caliber spitzers. He suggested a .32-20 article would be more complete if I borrowed a revolver from some friend and loaded for it too.

By that point I'd jumped completely into the .32-20

.32-20 Winchester

WCF, with my bank account wide open, and almost bought a first-generation Colt Single Action Army from a local gun store. But that somehow didn't seem appropriate, since most .32-20 revolvers are somewhere between flimsy and heavy .45-frame guns. The search continued – and ended a couple of months later with a double-action Colt Army Special in very good condition.

This model had nothing to do with the U.S. Army, because by the time the Army Special appeared in 1908, our military was already heading toward the M1911 Browning. Instead, the name was apparently a marketing ploy, but most Army Specials ended up as law enforcement sidearms. Colt eventually accepted this fact, in 1927 making some minor changes and renaming the "new" model the Official Police.

The Army Special was originally designed to handle the modernized version of the .41 Long Colt cartridge, so early on, the new frame size was often called "the .41 frame," and in fact Elmer Keith uses the term in *Sixguns by Keith*. Eventually Colt called it the "E" frame, and when the firing pin was switched from the hammer to the frame, the "I" frame. In 1955 the Army Special/Official Police line culminated in the famous Python, and evidently some parts from Army Specials still interchange with Python parts.

My Army Special is the basic model with hard rubber grips and a 6-inch barrel and, according to the serial number, was made in 1923. It isn't a "heavy .45 frame" but is more stout than some other .32-20 WCF revolvers. The top strap obviously isn't as heavy as a Python's, but due to the relatively small-diameter cartridge, the cylinder walls are thicker than those of many .38 Specials and .357 Magnums.

Black-powder equivalent .32-20 loads, or even lighter, can be reproduced with several modern propellants.

Firearms chambered for the .32-20 WCF have now been made for 133 years, so modern handloading data varies considerably. Hodgdon only lists wimpy revolver data, but Hornady and Speer list both rifle and handgun loads, with Speer's handgun data divided into Cowboy Action and Contender data. (Cowboy action shooting is another competitive arena where the .32-20 made a recent comeback, since it's a "traditional" cartridge meeting the .32-caliber minimum.)

The *Speer Reloading Manual #14* revolver introduction suggests: "Check the barrel-cylinder gap of any older revolver before shooting it. The industry's maximum allowable gap is 0.012 inch but we feel a maximum of 0.008 inch is better for all-around performance. An over-sized gap can cause a bullet to lodge in the barrel. Sizing cast bullets to .001 inch over chamber throat diameter helps avoid stuck bullets. Do not load below the starting loads shown here." One friend told me a story about some .32-20 WCF *factory* ammunition in an old revolver: If the handgun was tipped upright before aiming, each round shot fine, but if pointed downward, bullets stuck in the bore.

The cylinder gaps on my Colt

Left, the selection of bullets chosen for the test covered everything from cast semiwadcutters to jacketed spitzers. Above, the neck-expansion cylinder in the RCBS dies opened the necks to .307 inch inside diameter, allowing the loading of bullets from .308- to .313-inch diameter.

measure .009 inch; the chamber mouths are .314 to .315, and the barrel's grooves, .312. This beats the heck out of chamber mouths smaller than the bore, a common problem in old – and sometimes not-so-old – revolvers, but there was no way to follow Speer's suggestion and use .316-inch bullets.

Instead a supply of .312-inch, 85- and 100-grain Hornady XTP jacketed hollowpoints were gathered, plus .313-inch Cast Performance semiwadcutters weighing 95 and 113 grains. Other companies make suitable jacketed bullets, but none were available during the year I spent pulling stuff together for this project. In fact, I was lucky to locate the XTPs, their dusty boxes found in a dark corner of a local store's shelves.

Cases were also a problem, since the .32-20 WCF hasn't been high on any manufacturer's list during the extended Obama reelection shooter's buying panic. My hope was to acquire Starline brass, but apparently it wasn't making any, and neither were Remington and Winchester. Luckily, a dealer friend had some new Winchester cases, the guy who sold me the Army

.32-20 Winchester

Special included some new Remington brass, and I had a few once-fired Remingtons (and a box of Remington ammunition) from a previous fling with the cartridge in a Winchester Low Wall. Sometime during the year, a box of Winchester factory ammunition also appeared.

Having two brands of brass solved the problem of keeping revolver loads separate from higher-pressure rifle loads. All handgun loads used Remington cases, and there wasn't any problem telling

.32-20 WCF

bullet (*grains*)	powder	charge (*grains*)	overall loaded length (*inches*)	muzzle velocity (*fps*)	group (*inches*)
Colt Army Special, 6-inch barrel, one-in-20-inch rifling twist:					
85 Hornady XTP	Lil'Gun	8.0	1.527	863	2.62
95 Cast Performance	Unique	3.5	1.529	695	4.77
	Trail Boss	2.8		684	4.65
	Bullseye	3.0		808	2.37
	A-5	5.0		909	5.24
	Power Pistol	4.0		838	4.88
100 Hornady XTP	Lil'Gun	7.5	1.526	708	5.27
113 Cast Performance	Unique	4.5	1.568	935	2.75
	Trail Boss	2.5		526	1.76*
	Blackhorn	11.0		778	2.05
100 Remington factory load				833	7.78
100 Winchester factory load				861	1.78
Thompson/Center Contender, 10-inch barrel, one-in-10-inch rifling twist:					
110 Berger Target FB	H-110	16.0	1.790	1,876	.89
	A-9	13.0		1,745	1.76
	IMR-4227	15.0		1,652	1.24
130 Hornady Spire Point	H-110	14.5	1.995	1,612	1.13
	A-9	12.5		1,612	.60*
	IMR-4227	14.5		1,618	2.69
Savage Model 23C, 24-inch barrel, one-in-20-inch rifling twist:					
85 Hornady XTP	A-9	13.5	1.527	2,166	1.38
	IMR-4227	16.0		2,003	1.27
	Unique	6.5		1,703	1.50
	H-110	14.5		1,965	1.10
95 Cast Performance	IMR-4227	10.0	1.529	1,349	1.00
	Unique	6.0		1,678	1.44
	Red Dot	4.5		1,335	1.31
	Trail Boss	2.8		940	2.09
100 Hornady XTP	A-9	11.5	1.526	1,848	.76
	IMR-4227	14.0		1,702	1.52
	H-110	12.5		1,695	1.06
	RL-7	15.5		1,630	.72
113 Cast Performance	Unique	5.0	1.568	1,333	.78
	Red Dot	4.0		1,165	2.50
	Green Dot	4.5		1,230	.65*
	Trail Boss	2.5		725	1.95
	Blackhorn	11.0		1,076	1.81
100 Remington factory load				1,160	3.06
100 Winchester factory load				1,167	.95

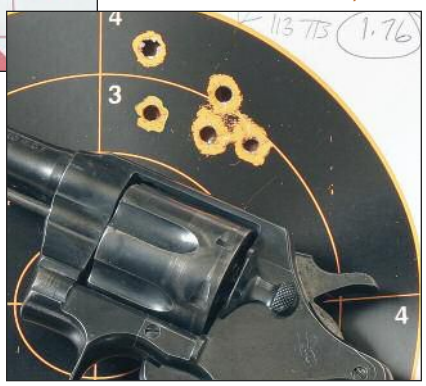
* most accurate load in each firearm

Notes: The Colt Army Special and Thompson/Center Contender handloads used Remington cases and CCI 500 primers. The Savage Model 23C rifle's handloads used Winchester cases and Tula KVB223 Small Rifle primers. The Colt Army Special loads were fired at 25 yards; the T/C Contender and Savage loads were fired at 50 yards.

Be Alert – Publisher cannot accept responsibility for errors in published load data.

The Contender shot pretty well with any load, but the most accurate handload (upper left) combined Hornady 130-grain Spire Points and Accurate No. 9 powder.

The Colt revolver's preferred handloads used Trail Boss and the Cast Performance 113-grain gas-checked semiwadcutter, but Winchester factory ammunition also shot very well.



revolver handloads from Contender handloads due to the spitzers in the Contender's loads. The Winchester brass was used for all the rifle handloads.

Russian-made Tula KVB223 Small Rifle primers were chosen for the Savage 23C handloads. I'd first tried a few in 2013, when small rifle primers of any kind were particularly scarce, and they worked so well I bought several thousand to supplement my dwindling supply of American primers. The Speer data for revolvers and Contenders listed CCI 500s, so those were used in the handgun handloads.

The RCBS dies featured a neck-expansion cylinder measuring .307 inch in diameter, allowing the use of either .308- or .312- to .313-inch bullets. Every .32-20 WCF handloading reference I found mentioned potential problems with the thin brass, but lightly chamfering and slightly belling the case mouths prevented crumpling when seating any of the bullets used in the tests.

The surest method of producing black-powder pressure .32-20 WCF revolver loads is to dump enough FFFg in a case to compress slightly with whatever bullet you load, but there really isn't any room for experimentation, and I've had enough experience cleaning black-powder fouling out of revolvers to avoid it whenever possible. However, both Blackhorn 209 and Trail Boss provided their usual good results for those shooters desiring minimal pop.

The revolver range tests were interesting. I started the Army Special with factory loads, to see where the fixed sights shot at 25 yards – and to see if any bullets stuck in the barrel. It really liked the Winchesters and *hated* the Remingtons, which set the overall pattern: *No* revolver handloads grouped between 3.0 and 4.0 inches, either shooting better or worse.

I also couldn't see any pattern in which powders or bullets shot best, since they showed the same either/or tendency. One example is the almost 3-inch difference in average group size between the two Trail Boss loads. No bullets stuck in the barrel, but I didn't try any "starting loads," since all low-pressure data seemed well within the Army Special's limits.

.32-20 Winchester

It had been a couple of years since I'd shot a Contender handgun barrel and was once again amazed at the accuracy. The 110-grain bullet isn't listed on Berger's website right now, probably part of the general shrinkage of many bullet lines since 2012, but does provide a guideline for other 110s. The Hornady 130-grain Spire Point with Accurate No. 9 was the winner by a slight margin and could work as both a target and game bullet. Both bullets were seated to the approximate overall length listed by Speer, since Hornady's T/C data only lists XTPs, not spitzers.

The Savage rifle shot just as well as the other 23s I've owned, with many loads grouping under an inch at 50 yards. The most versatile ammunition selection turned out to be any of the higher-velocity 100-grain XTP loads, paired with the Cast Performance 95-grain lead bullet with Red Dot. With the lone exception of the 6.5-grain Unique load, all the 100-grain handloads landed in the same place at 50 yards, with the 95-grain Red Dot load printing 1.5 inches lower. The 95 sighted in dead-on at 50 yards would work great as a small game and practice load, while any of the high-velocity, 100-grain jacketed loads get everything possible out of the .32-20 WCF for longer-range shooting of varmints or (Dare I say it?) smaller big game. A 100-grain XTP in the ribs would not do a deer or feral pig any good.

If anybody wants to use the same hunting load in a "traditional" rifle and revolver, the 113-grain Cast Performance bullet did well in both, using reliable old Unique. The charge differed a half-grain, due to varying data for rifles and revolvers, so would have to be adjusted slightly. Given the relative stoutness of the Army Special, I'll probably choose the 5.0-grain load that shoots so well in the rifle, raising the velocity to at least 1,000 fps in the revolver – not exactly Elmer Keith velocity but not wimpy either.

Aside from cowboy action shooting or target shooting with a Contender, why would anybody choose the .32-20 WCF today, with such a wide array of more modern cartridges suited for so many purposes? Well, some of us like shooting older firearms, because that's what they were built to do, and it's a lot of fun – and the .32-20 WCF is a *lot* of fun.

The Perfect .250-3000

(Continued from page 35)

Table II **.250-3000 Twist/Velocity Calculations**

bullet (*grains*)	bullet length (*inches*)	velocity required (1-14 twist) digital calculation (*fps*)	Berger program (*fps*)	*Gun Digest* chart (*fps*)
75 Sierra	.664	1,625	900	1,100*
90 Sierra	.896	2,950	2,850**	2,600 (allowing for BT) 3,000 (no BT)
100 Swift Scirocco	1.120	4,600	6,000+	***
110 Nosler AccuBond	1.193	5,225 (!)	6,000+	***

* An indeterminate number, but less than 1,100 fps is necessary for stabilization.

** Berger advises that good groups *might* be shot at this velocity, but stability would be marginal.

*** Required velocity exceeds chart limits.

lized. The Model 99 EG, a proven quantity with its 24-inch barrel, was included to provide a comparison with both loads.

Incidentally, all three formulas agree on performance with the 100-grain bullet. With a 14-inch twist, it would need impossible velocities to achieve even marginal stability.

The attached Table I gives measured velocities from the two rifles with a variety of bullet weights and powders. It clearly shows the problem: coaxing enough velocity from the shorter barrel.

In most cartridges, for maximum velocity with heavier bullets, slower powders deliver better results. This is where longer bullets, encroaching on powder capacity and allowing less space when what you want is more powder, would really become a problem. It's rendered academic, however, by the fact that slow powders and short barrels do not go together anyway. The table also shows that the slower the powder used, the greater the velocity shortfall in the 22-inch barrel.

The end result of all this is the inevitable conclusion that, having chosen a bullet – in this case, the Sierra 90-grain HPBT – you should then look at the faster-burning powders to get the necessary velocity. Hodgdon's Benchmark is only slightly slower than IMR-3031, but since initial results with 3031 were not promising, I switched to Benchmark and worked with it exclusively for both the 75- and 90-grain bullets. Hodgdon loading data gives a maximum of 33.0 grains of Benchmark in both bullet weights, and that worked remarkably well.

In the Model E, muzzle velocity with the 90-grain Sierra was 2,858 fps – well above the minimum velocity required for stability – and with the 75-grain bullet was 3,039 fps. Most important, both loads grouped very well in that rifle. With its receiver sight, three-shot groups ranged from 1.5 to 2.0 inches at 100 yards. In the Model EG, both were even better, with velocities of 2,982 fps with the 90-grain bullet and 3,181 fps with the 75. The EG has a 4x scope, which means groups should be smaller, and they were. Both loads grouped three shots consistently around 1.5 inches, and sometimes a little smaller.

Although the above dealt only with the .250-3000 in Savage 1899s of various vintages, the principles involved apply to a wide range of rifles and cartridges. Most of these are older designs and include such rounds as the various 6.5mm's, both military and civilian, the .22 High Power (another Newton/Savage design) and several .257s, among others. Anyone starting work with such an old rifle may save himself considerable time, effort and money by first measuring its twist rate and then using the methods outlined to determine what bullets might work in the rifle, and what velocities will be required.

NOE Bullet Moulds

PRODUCT TESTS by John Haviland

Five years ago Al Nelson went shopping for a bullet mould for his .41-caliber rifle. He found one but balked at the high price. Nelson decided he could make his own bullet moulds, and that was the start of NOE (Night Owl Enterprises) Bullet Moulds, LLC. Fortunately, Nelson started his business just before a shortage of handloading components caused a dramatic increase in bullet casting.

"Two years ago demand went way crazy," Nelson said. Orders have somewhat leveled off lately but are still on the upswing. To meet that demand, Nelson recently opened a 2,000-square-foot shop containing a new mill and CNC lathe. Nelson describes his company as a maker of semi-custom bullet moulds. When a bullet caster orders a special mould, Nelson figures he must make 15 or 20 of the moulds to justify his cost. "The mould also has to have salability down the road too," he said.

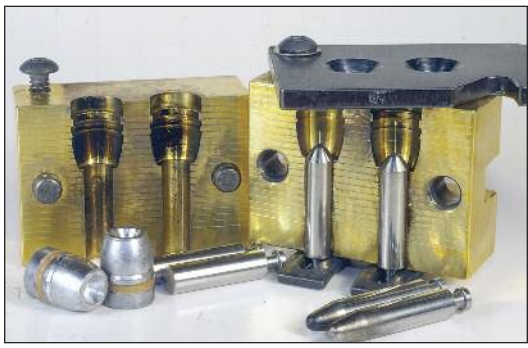
NOE offers a vast variety of moulds from .22 through .62 caliber. NOE .308- to .311-caliber aluminum and brass moulds alone include 152 variations that cast 129- to 247-grain bullets. "Aluminum moulds heat up faster but don't hold heat as well as iron," Nelson said. "But aluminum moulds still cast very high quality bullets." Nelson also likes moulds machined from brass. "It's harder and heavier than aluminum and holds an even heat better," he said. NOE mould cavities are cut to produce stated diameters and weights casting with wheelweight lead alloy.

NOE's brass two-cavity 453 210Gr. RF mould is made with a Removable Guide (RG) system of holding pins to form a hollow point. A pin is held in a slot in a metal strap attached to the bottom of the mould. When the filled mould is opened, the pin tilts out and the bullet falls off the pin. Closing the mould realigns the pin in the cavity and casting continues.

Three sets of hollowpoint pins are included with the 453 210Gr. RF mould. One set has tapered points that produce a hollow about 0.115 inch deep. A second set of pins are also tapered but longer to form a deeper hollow. The third set has a flat tip to shape a shallow flat bottom cavity.

Bullets cast in the mould with wheelweight lead alloy dropped from the mould with the short tapered pins in place and weighed 226 grains. Of 50 or so weighed, a few varied 0.3 grain from that weight. Bullet diameter was .453 inch on the driving bands. At that diameter, and with its crimp groove, the bullets can be shot in a .45 Colt or .45 Auto.

I was going to shoot them in a .45 Auto Colt Gold Cup National Match, so the bullets were pressed through a .451-inch sizing die, applying lubricant at the same time. With the Colt on a sandbag rest, five-shot groups went between 2 and 3 inches at 25 yards with 5.0 grains of Titegroup, 4.3 grains of Bullseye and 4.0 grains of Competition.



The cast bullets I shoot most are .30 caliber through the .308 Winchester, .30-06 and .300 WSM. So NOE's five-cavity 311299 202Gr. RN mould caught my attention, because it allows casting a pile of bullets in a short time. Casting with wheelweights, bullets dropped from the mould weighing 199.5 grains. Some varied 0.3 grain either side of that weight, which is pretty exact for a five-cavity mould.

This bullet is a bore-riding design with a forward section .300 inch in diameter. Loaded in .30-06 cases with a cartridge length of 3.245 inches, the front quarter of the nose was lightly engraved by the rifling lands in a Ruger American rifle.

Cartridges loaded with the NOE bullet and 27.0 grains of H-4198 and 32.0 grains of Varget produced a few hangfires. That's puzzling because these powders have previously worked well in the .30-06. Five-shot groups measured about 3 inches at 100 yards with these powders. A-5744 powder, though, produced even velocities, and 22.0 grains of the powder placed five bullets in 1.5 inches.

An increased interest in bullet casting is partly the reason for the demand for NOE. Mostly, though, it's because of the quality of the moulds. Contact NOE online at: www.noebulletmoulds.com. ●

.300 Winchester Magnum

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locity) include Hodgdon H-4350, H-4831, H-1000; Alliant RL-17, RL-19, RL-22, RL-25; IMR-4350, IMR-4831, IMR-7828 SSC; Norma MRP; Vihtavuori N165 and N560; and Accurate 4350. There have been some excellent slow-burning ball powders offered in the past decade or more with notable performance from Alliant 2000MR (light bullet loads only), 4000MR, Accurate MagPro, Ramshot Magnum and Hunter. Suggested "start" loads containing ball powders should not be reduced, or erratic ignition and pressures are likely. The faster burn rate powders are best when matched with lightweight bullets, while those with a slower burn rate perform best with heavier bullets.

Many loads that produced inferior accuracy were eliminated from the load table. On the other hand, many of the listed loads consistently produced sub-MOA accuracy from the Ruger rifle. Often the best accuracy was recognized with loads that were maximum or near maximum.

Industry maximum average pressure has historically been listed at 54,000 CUP, but with the transition underway to the significantly more accurate piezoelectric transducer system, that figure has been changed to 64,000 psi. Most factory loads are below that figure and typically measure around 57,000 to 61,000 psi, although that can vary with lot numbers, manufacturer, etc. None of the accompanying data exceeds industry pressure limits.

In studying the compiled data, it is reasonable for handloaders to duplicate or even exceed factory load velocities. With a huge bullet selection, it is clear why the .300 Winchester Magnum is a contender as one of the best all-around cartridges for hunting all game in North America.

In Range

(Continued from page 70)

lights, the do-gooders of the world immediately anticipated an epidemic of accidents as drivers were blinded by oncoming cars with lights like search beams. In some jurisdictions, regulators forced carmakers to put in switches that automatically killed the high beam when the driving lamps were turned on. If a car was coming toward you and you courteously killed the driving lamps, however, the high beams were automatically turned back on. The practical result was that there were no low beams, only two different forms of high beam. Great. A classic committee decision if ever there was one.

Having watched, as a reporter, as laws were being made at committee level, I have marveled at how hours of argument can slowly turn a question on its head. At the end, all the members nod sagely at a decision which, to a dispassionate observer seeing it for the first time, makes absolutely no sense.

Since 1968, the more onerous provisions of the GCA have been modified in some cases and withdrawn completely in others. Today, you can once again produce lead bullets in your garage, sell them for a few bucks and ship them anywhere in the country by mail, UPS or what have you. However, it took time, political pressure and a lot of chipping away to get back to this.

In the meantime, the entire nature of commerce has changed, with an ever-growing percentage of goods being sold over the Internet and shipped to the buyer by mail. For shooters, this is particularly beneficial. Before 1968, if your local gunshop did not stock a particular powder or type of bullet, it might take weeks to order it in. Alternatively, you could find an ad in a shooting magazine, write to the company, place an order and mail a check, then sit back and wait.

Today, you visit websites like Huntington's, Graf's or MidwayUSA's, find what you're looking

for, pay with a click and expect delivery to your door in as little as one or two days. This is not only more convenient, it also makes available to us more products from more manufacturers than ever before. Think of the variety of products available today – vastly more than in 1968 – and then imagine if you had to depend on your gunshop to stock every single powder, bullet, primer and shotshell wad you might want to try out. It would be impossible.

With shooters now so dependent on interstate commerce by mail, we are more vulnerable to government interference than we were in 1968. We have fewer gunshops than we had then, and if they ever halted shipping of bullets across state lines, we'd have real problems.

It is the nature of modern government, which is both very big and very meddlesome, that many decisions on technical matters are made by people who know little or nothing about the subject in question and simply vote on what is recommended by the experts – theirs or someone else's. This applies to gunpowder, its storage and the shipment thereof; it applies to primers and percussion caps; naturally, it applies to loaded ammunition in its many forms.

There are two ways to rectify wrong-headed decisions. You can try to talk sense to them, presenting facts and hoping they'll see the light. That was the approach in Canada, and it did not work very well. Unfortunately, without a strong shooters' organization like the NRA, it was all we had.

Or, you can marshall tremendous political clout in both votes and money, call up the legislators and threaten them with God's own electoral doom. This is the normal approach in the U.S., and while it may smack of unacceptable strong-arm tactics to some, it certainly works well. It's quick, to the point and requires no committee meetings to hammer out compromise and consensus, and anything that heads off the horror of committee decisions gets my vote.

AD INDEX

Legislation for Fun and Frolic

IN RANGE by Terry Wieland

One of the lesser known provisions of the infamous Gun Control Act of 1968 was the prohibition on private interstate commerce in bullets for reloading. In practice, this meant that a guy working out of his garage with a lead smelter and a couple of bullet moulds, casting bullets a few hundred at a time and selling them directly by mail was out of business. He could still sell them within his own state, but it drastically reduced business potential and most practitioners simply closed their doors.

Did this regulation have any effect whatever on crime? Absolutely not, unless someone can dig up an instance of an out-of-work bullet caster who, deprived of his meager livelihood, turned to knocking over liquor stores.

Looking back 47 years later, one wonders what the lawmakers were thinking when they included that in GCA '68, as it came to be known. Since it was enacted immediately after the assassination of Robert F. Kennedy, and his killer used a .22 rimfire, that fact may have had some bearing on it, encouraging lawmakers to try to restrict every aspect of shooting.

Still, you wonder. To my knowledge, there is no record of anyone, anywhere, being assassinated with a reloaded cartridge. But the thinking seems to be that, if criminals are deprived of factory ammunition, they will automatically turn to handloads. It is presumably logical, therefore, to regulate handloading components.

If you have ever witnessed the actual process of lawmaking, the reasoning behind this becomes understandable. Most laws evolve through a succession of committees, and after a few mind-numbing hours of argument, a committee can agree unanimously that up is down, black is white, and that their projected law is actually sensible. It's a marvelous process to watch, in its own bizarre way.

The term "What were they thinking?" applies so often it's a cliché. The short answer is that they were no longer thinking at all. Rather, they were seeking "consensus," that elusive modern state of grace wherein no one disagrees with what is being done, and therefore they (theoretically) unite in support. Any logical, sensible person (you and me, for example) might look at the result and say no one disagrees with it because it does nothing and will accomplish nothing, but it allows them to say they have "done something" to solve the problem.

It is hard to imagine any combination less likely to threaten the security of the state – a .22 Hornet with cast bullets – but shipping them across state lines was illegal under GCA '68.

Lawmakers are fond of quoting the famous Bismarck line about laws and sausages, to the effect that if you admire either, you should not watch them being made. Bismarck did not intend it as a compliment to lawmaking, but some modern legislators apparently take it as a challenge to draw up ever more whacky legislation. Nowhere is this more easily done than in a committee. The committee may be a building block of democracy, but it so often results in laws no one can comprehend that the term "committee decision" is now used to describe any measure that is stupid, pointless, incomprehensible or even – in some notable cases – accomplishes exactly the opposite of what was intended.

For example, when cars first began appearing fitted out with driving lamps in addition to their normal high-beam-low-beam head-

(Continued on page 68)

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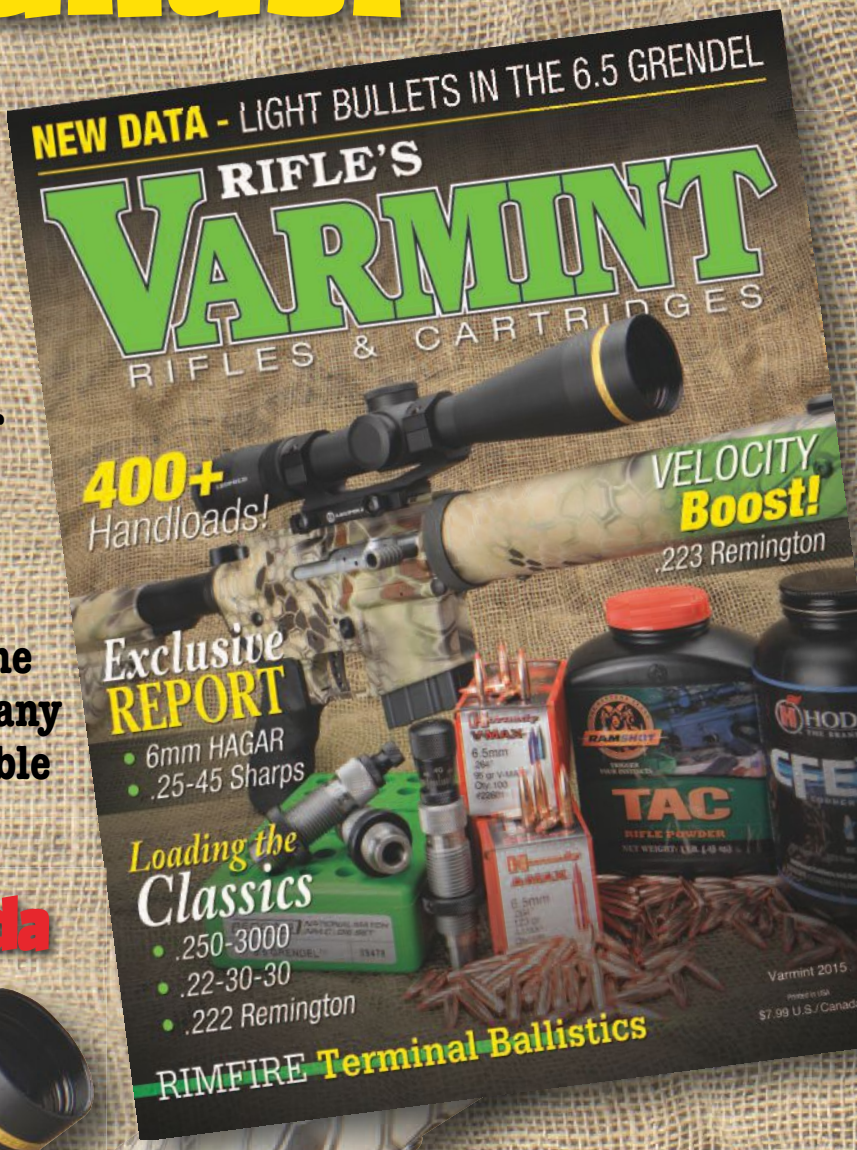

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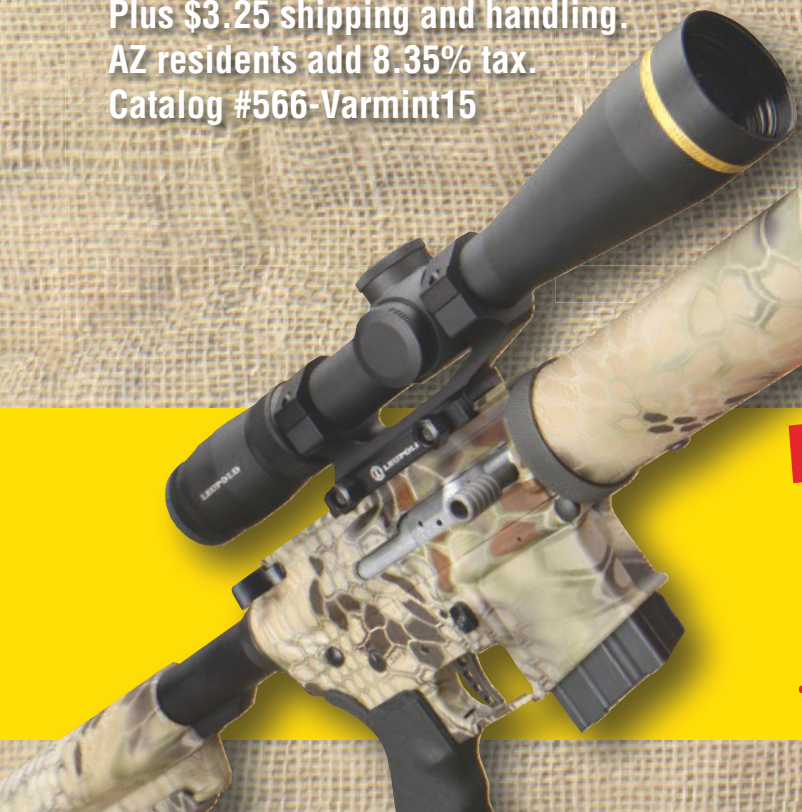

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